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MARKET ORIENTATION AND VERTICAL DE-INTEGRATION: CREATING CUSTOMER AND COMPANY VALUE

by

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This thesis is dedicated to my parents

Abstract

This thesis explores the relationship between a firm's supply chain and a firm's degree of market orientation and economic performance. The results suggest that certain types of supply chain design – in particular those models that make for close links with the firm's customers – lead to superior marketing and shareholder value.

Two sets of environmental forces have been particularly influential in reshaping supply chains over recent years. One is the enormous growth in production capacity, especially in the Far East, which has lead to more industries operating with excess capacity. Production skills and resources were once seen as at the heart of a firm's core capabilities and the source of its competitive advantage. Today, in more and more sectors, the key skill is marketing – creating customer preference in over-supplied markets through branding and customer relationship management. Downstream activities in the supply chain have risen in prominence compared to upstream activities.

The second change has been the information revolution brought about by the computer and the Internet. This has lowered the transaction costs of integrating the activities performed by the different businesses constituting a supply chain and made it increasingly attractive to achieve control without ownership. Supply chains can now become networks integrated through seamless information exchanges.

We explore these changes at the microeconomic level. The research draws upon the existing literature and on primary data including exploratory interviews, main-study in-depth interviews and survey data. Matched pair samples of 20 high performance and 20 low performance business units based in the UK provided the main body of data results. Data analysis involved four distinct phases; within case analysis and cross case analysis for the qualitative data collected; exploratory factor analysis (EFA) to identify dimensions of influence as a method of integration; discriminant analysis and Lambda to investigate the association between supply chain configuration typologies, market orientation and business performance.

Two major contributions stem from this research. First, the interdisciplinary domain for supply chain configuration can be established. Whereas traditionally competitive advantage has been built through a focus on operations efficiency – streamlining processes to reduce cost, today increased communications, global markets and the speed at which Internet technologies are developing, demand and facilitate an additional perspective for supply chain management – the effectiveness perspective.

The concept of effectiveness brings the subject of supply chain management from the sphere of operations management into the domain of marketing strategy. From this perspective the building, maintenance and management of customer relationships becomes central to the supply chain configuration. Highly efficient production processes, where fiercely protected technical know-how enables the delivery of superior quality products, no longer acts as a sustainable source of competitive advantage. To achieve this, firms must focus on two principle activities: building brand value and carefully fostering relationships with key customers. For firms positioned upstream in the supply chain, building a strong brand identity offers potentially a means to integrate downstream with both customers and consumers.

The second contribution comes from the association of supply chain configuration with other variables. Our results show a relationship between *market orientation, business performance* and *supply chain configuration.* We conclude that companies are beginning to recognise opportunities that arise from using technology and information to blur traditional boundaries between suppliers, manufacturers and end users. We discuss how technology enables co-ordination across company boundaries to achieve new levels of efficiency and effectiveness, as well as extraordinary returns to investors. For example, a company, its suppliers, and even its customers might begin to share information and activities to speed the design of a product and raise the likelihood of its success in the marketplace. This should enable suppliers to begin developing components before the overall product design is complete, providing vital timely feedback regarding component specification, cost and time objectives. Equally, customers are able to review a product as it evolves and provide input on how it meets their needs. Managers must concern themselves with the design stages of the product and facilitate knowledge and information flows through the entire supply chain.

Business seems to be on the threshold of a new era of inter-firm relationships. Supply chain customers sharing the same suppliers are able to provide leadership, encouraging shared distribution systems and payment/ordering systems. Over capacity in firms forces such considerations. Collaborative approaches can drive down costs and ultimately offer improved services for consumers, making available the goods they want, where and when they want them. But this configuration of an interconnected, interdependent supply network requires much more openness. Inter-firm boundaries must become almost invisible. Trust, commitment, open communication and information sharing must permeate the culture of partnering firms. The sharing of real time customer information both within and between firms facilitates the reduction of inventory and increases speed to market, reducing risk and increasing cost savings. Customer information provides a sound basis for segmenting markets, allowing the understanding of customer needs to develop in a deeper way. This customer closeness gives access to information critical in aiding accurate forecasting which is central to the elimination of unnecessary costs and enabling firms to dramatically extend the value they deliver to customers thus creating competitive advantage.

Shrinking the time and the resources it takes to meet customers' needs in a world where those needs are constantly changing is the challenge. As Wayne Gretzky, the famous hockey player explained, *"the key to winning is getting first to where the puck is going next"*. The same could be said about succeeding in business. Listening to customers and then using and sharing this most valuable information resource throughout the supply chain will be the key.

Keywords: balanced scorecard, business performance, discriminant analysis, influence, inter-firm relationships, Internet, market orientation, relationship marketing, shareholder value, supply chain, supply chain configuration, technology, transactional relationships, vertical de-integration, vertical integration.

DECLARATION

This is to declare that:

- I am responsible for the work submitted in this thesis.
- This work has been written by me.
- All verbatim extracts have been distinguished and the sources specifically acknowledged.
- During the preparation of this thesis a number of papers were prepared as listed below. The remaining parts of the thesis are unpublished.

Mason K., P Doyle, (2000), *"Market Orientation and Vertical De-Integration: Adding Value through Relationships"*, Proceedings of the 2000 Annual Conference of the Academy of Marketing:

Mason K., P. Doyle & V. Wong, (2000), *"Exploring Supply Chain Configuration to Leverage Market Orientation: A Taxonomy of Vertical De-integration*", CD-ROM Proceedings of the 29th EMAC Conference: Marketing in the New Millennium: Rotterdam: Erasmus University Rotterdam.

Mason K., P. Doyle & V. Wong, (1999), *"Market Orientation and the Organisational-Form-Business Performance Relationship."* CD-ROM Proceedings of the 28th EMAC Conference: Marketing and Competition in the Information Age: Berlin: Humbolt University Berlin.

Mason K & P Doyle, (1998), *"Market Orientation and Vertical De-integration – The Implications of Networks and Partnerships."* Proceedings of the 1998 Annual Conference of the Academy of Marketing: Sheffield; Sheffield Hallam University: p.632-633.

- This work has not previously been submitted within a degree programme at this or any other institution.

Signature: _____

Date: _____

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CHAPTER 1

Introduction

"The idea of vertical integration is an anathema to an increasing number of companies. Most of yesterday's highly integrated giants are working overtime at splitting into more manageable, more energetic units – i.e. de-integrating. Then they are turning around and re-integrating – not by acquisition but via alliances with all sorts of partners of all shapes and sizes." Tom Peters, (1992), Liberation Management.

1.1 Background

The history of marketing has been about enabling firms to create customer value. Marketing as an academic subject dates back to about 1910 when the Midwestern American land-grant universities became strongly involved with the farming industry. Academics began to study agricultural markets, the processes by which products were brought to the market and the determination of prices for those products. Their analysis was focused on the commodities and the organisations involved in moving them from farm, sea, mines and factory to industrial processors, users and consumers. By 1948, the American Marketing Association defined marketing as,

> *"...the performance of business activities directed towards, and incident to, the flow of goods and services from producer to consumer or user."*

We can see how this process occurs by looking at the supply chain. At each stage the raw materials are processed in a way which adds value for the customer downstream (Figure 1.1). In recent literature there has been increasing concern about the backward focus of this linear approach to the supply chain. With its background in operations management, supply chain management has traditionally focused on the production and control aspects of operations, seeking to leverage profit by cost cutting; streamlining activities and maximising efficiency. But this approach neglects the fundamentals of marketing and the very reason for the firms' existence – the customer. By embracing the concept of marketing into the supply chain we add a

Figure 1.1 The Supply Chain

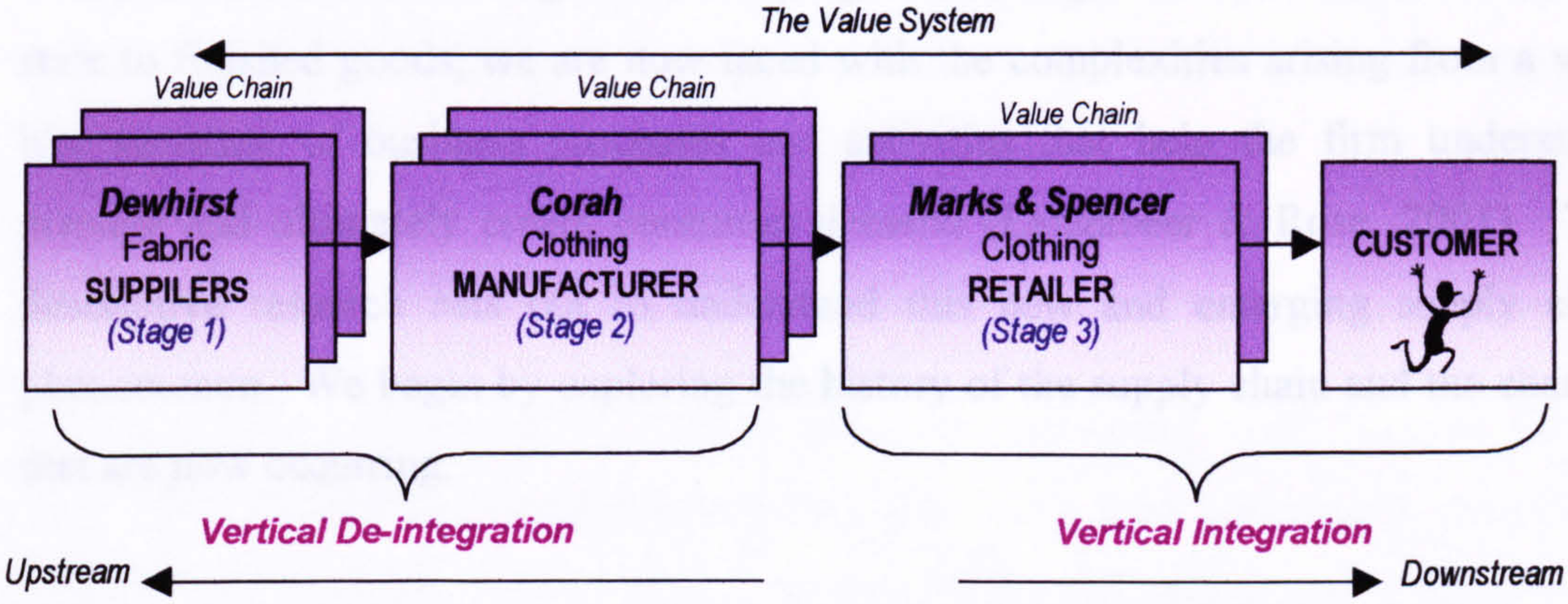
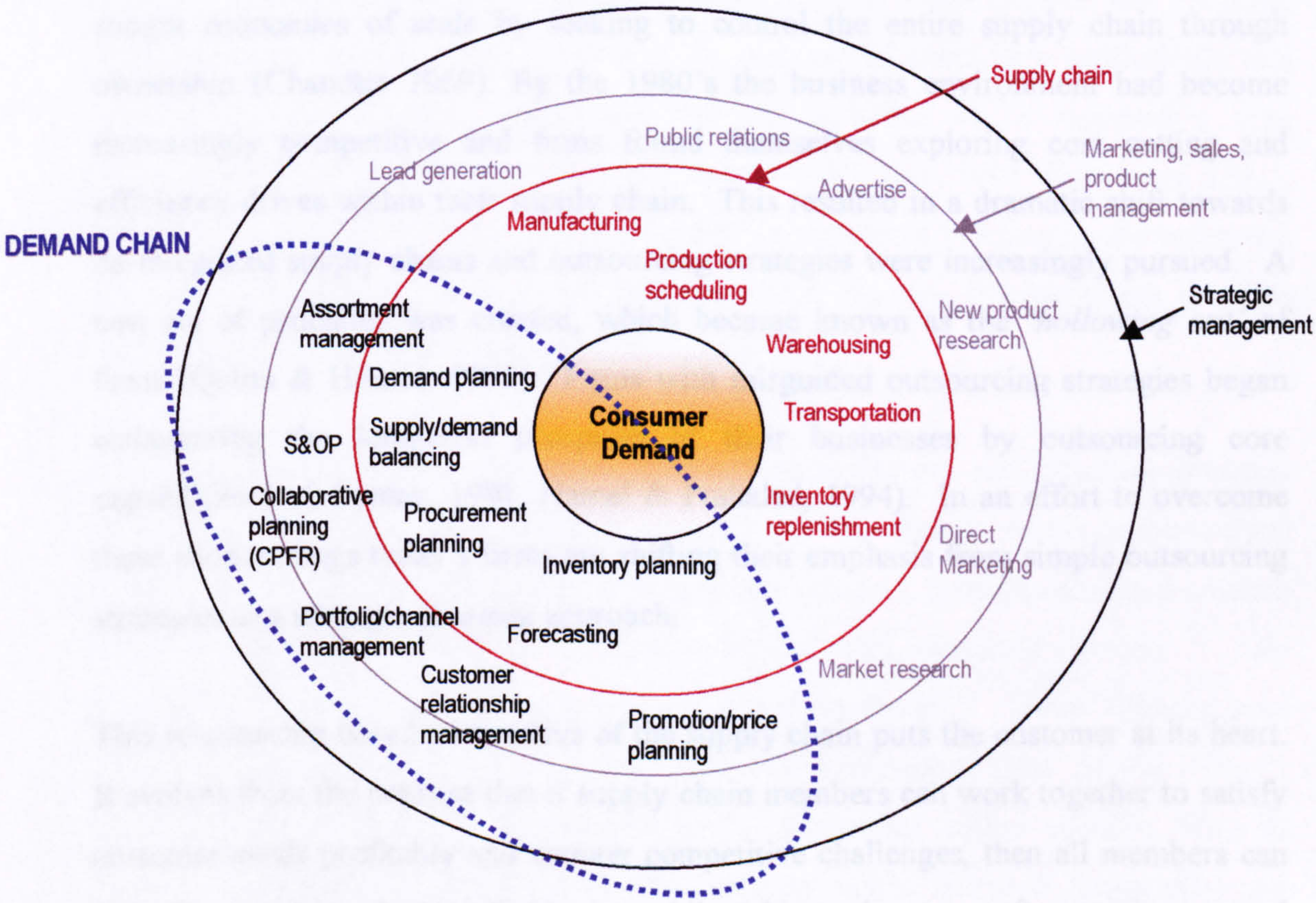


Figure 1.2 The Demand Chain



Source: Langabeer & Rose (2001), p.9

forward focus to current theory and create – what Langabeer & Rose (2001) label the demand chain (Figure 1.2). This shifts the focus from efficiency to effectiveness. Thus, instead of considering the linear progression of goods from their raw material state to finished goods, we are now faced with the complexities arising from a web-like structure of business processes and activities that help the firm understand, manage and ultimately create consumer demand (Langabeer & Rose, 2001). This descriptive research sets out to understand this new and emerging supply chain phenomenon. We begin by exploring the history of the supply chain and the changes that are now occurring.

Two key features of the supply chain that have changed over the years are the level of ownership and the subsequent management of inter-firm relationships. These changes have resulted in changing supply chain configurations; from fully vertically integrated forms to de-integrated networks.

In the 1950's and 1960's firms protected themselves from uncertainty of supply and sought economies of scale by seeking to control the entire supply chain through ownership (Chandler 1969). By the 1980's the business environment had become increasingly competitive and firms found themselves exploring cost cutting and efficiency drives within their supply chain. This resulted in a dramatic shift towards de-integrated supply chains and outsourcing strategies were increasingly pursued. A new set of problems was created, which became known as the *'hollowing out'* of firms (Quinn & Hilmer, 1995). Firms with misguided outsourcing strategies began endangering the long-term prospects of their businesses by outsourcing core capabilities (*c.f.* Barney, 1991; Hamel & Prahalad, 1994). In an effort to overcome these shortcomings today's firms are shifting their emphasis from simple outsourcing strategies to a strategic sourcing approach.

This relationship-based perspective of the supply chain puts the customer at its heart. It evolves from the premise that if supply chain members can work together to satisfy customer needs profitably and counter competitive challenges, then all members can reap the rewards of cost efficiencies while taking advantage of synergies created through each firm developing their own core competencies. Further, the business environment in which these firms operate is changing. The *'Information age'*, as we

will see, is creating a new wave of opportunities for firms trying to organise themselves around market orientated behaviours. Anecdotal evidence suggests that this can now happen at very little cost whilst bringing potentially huge benefits. A supply chain that is market orientated will benefit from increased business performance.

1.2 The Academic & Business Interface

Top performing firms of the last decade are measuring their success through maximised shareholder value and removing their focus from maximised profitability. These two definitions of success have fundamentally different strategic implications. Maximising profitability is a short-term approach, eroding a company's long-term competitiveness by cutting costs and disposing of assets to produce instant improvements in earnings (*c.f.* Doyle & Hooley 1992). Being profit focused is short-termism and neglects market opportunities and reduces investment, destroying rather than creating economic value. The pursuit of shareholder value drives a longer-term strategic focus towards the identification of growth opportunities and building competitive advantage. This is often at the expense of short-term profitability that would otherwise destroy assets and fail to capitalise on a company's core competencies (*c.f.* Srivastava, Shervani & Fahey, 1998; Kay, 1993; Rappaport, 1981). The need to look at the long-term perspective is perhaps a reaction to the enormous changes in the global business environment, which explains the increasing pressure for greater strategic/management effectiveness.

Changes in both macro and micro environmental factors are affecting business performance. There have been a number of significant macro-environmental developments including economic, demographic, political, technological and cultural changes. As Doyle (2000) observes, these broad, external forces, "*...are fundamentally redrawing the business and social landscape.*" These changes have been given a variety of labels including '*post-industrial soci*ety', the '*global village*', the '*third wave*' and the '*information age*'. Operating within specific firms at industry level they fuel rapidly changing customer needs, increase competition and change in supplier relationships.

Doyle (2000) goes on to describe three distinct evolutionary periods in the western world. Each has had a dramatic impact on the commercial world. First came the *agricultural era* which lasted approximately 2000 years (8000 B.C. to the mid-eighteen century). Then came the *industrial era*, where machinery replaced manpower. This period lasted just 200 years until the 1960s when the western world entered the turbulent and dynamic birth of the *information age*. The information age has seen the manufacturing base of many western countries begin to transform to service based economies with the employment profile shifting from a largely blue-collar, shop-floor workforce, to a predominantly white-collar, computer driven, knowledge based '*society*' (*c.f.* Craincross, 2002). It has left no room for the old industries, edging out social organisations, as the business environment becomes increasingly competitive.

The information age has imposed a new set of demands on businesses worldwide. In order to succeed firms must be able to develop appropriate strategic responses adopting more appropriate supply chain configurations that thrive in global markets where new industry structures, increasing reliance on information and rising customer expectations provide opportunities to build competitive advantage. It is important to understand these environmental factors as they provide the context in which supply chain configuration will later be considered.

1.2.1 The Globalisation of Markets

In his seminal article, *"The Globalisation of Markets"*, Theodore Levitt (1983) commented on the changing nature of world trade. He holds the impact of technologies as central to the irreversibly global nature of today's dynamic business environment.

> *"A powerful force drives the world toward a converging commonality, and that force is technology. It has proletarianized communication, transport and travel. It has made isolated places and impoverished peoples eager for modernity's allurements. Almost everyone everywhere wants all the things they have heard about, seen or experienced via the new technologies... The result is a new commercial reality – the emergence of Global markets for standardised consumer products on a previously unimagined scale of*

magnitude. Corporations geared to this new reality benefit from enormous economies of scale in production, distribution, marketing, and management. By translating these benefits into reduced world prices, they can decimate competitors that still live in the disabling grip of old assumptions about how the world works." (p.94)

This globalisation trend is not a new phenomenon. Indeed the early work of Adam Smith (1776) provides the foundation for understanding trade today. Smith saw trade as a way to promote efficiency because it fostered competition, led to specialisation and resulted in economies of scale. Specialisation supports the theory of *absolute advantages* – that is, sell to other countries the goods that utilise your special skills and resources and buy the rest from those who have some advantage.

Ricardo in his 1817 publication, *Principles of Political Economy*, offered the theory of *comparative advantage*. This theory maintains that it is still possible to produce what one is best at even if someone else is better. Why industries have such comparative advantage is partly explained by Porter's *competitive advantage* theory. Porter (1990) argues that while the theory of comparative advantage has appeal, it limits itself to factors of production on land, labour, natural resources and capital. His study of ten trading nations that accounted for 50 percent of world exports and one hundred industries postulates that the country will have a significant impact on the competitive advantage of an industry, depending on:

- The elements of production
- The nature of domestic demand
- The presence of appropriate suppliers or related industry
- The conditions in the country that govern how companies are created, organised and managed as well as the nature of domestic rivalry.

The Global economy is in a state of transition from a set of strong national economies to a set of inter-linked trading groups. The past two decades have seen the acceleration of this transition, affected by events such as the fall of the Berlin Wall, the collapse of communism, the strengthening of the European Community into a single market and the introduction of the Euro. The investment by Europeans,

Japanese and Americans in each other's markets is unprecedented. As companies' globalise, manufacturing becomes more flexible and engineers have instant access to the latest technology. Doyle (2000) explains, Microchips designed in California, sent to Scotland to be fabricated, shipped to the Far East to be tested and assembled, are returned to the US to be sold. It is this context that firms must configure and manage their supply chains.

1.2.2 Changing Industry Structure

The industrial landscape in Britain, and throughout the Western world is becoming a knowledge-based society (Pereira, 2001; Craincross, 2002). Previously success industries of the 1960's and 1970's tended to be those associated with a high degree of labour and raw material intensity, for example, the textiles industry, coal mining and steel manufacturing. These traditional industries have become increasingly unprofitable as developing countries have invested aggressively, seeking to gain market share. Their lower cost-base (particularly labour costs) has generally enabled them to do this. As a consequence industry in the Western world has been forced to evolve and the past decade has seen the rapid growth of knowledge-based industries. These typically require less manpower but greater information and knowledge, for example, pharmaceuticals, communications equipment, electronics and computers. Here labour costs are typically less than 5% of total costs. Indeed, most costs are information related: research, design, development, testing, marketing, customer service and support (Doyle, 2000). These new industries require a reduced labour force and flatter, less hierarchical organisational structures than the more traditional industries.

Not only has the industrial base of the UK changed in recent times, but the prominence of industry has also been transposed. Whilst UK industrial output has remained fairly constant, the service sector has grown more than doubling in size over the past decade. The reason for this is the increased efficiencies and new information technologies now available. Supply chains have been shortened, reconfigured in a reaction to this changing industrial landscape.

1.2.3 The Information Age

Perhaps one of the most significant factors effecting the changes in industry structure has been the increasing use of technologies. This, it is claimed, is resulting in a paradigm shift in the way firms need to do business, putting relationships at the heart of transaction. One of the most widely revered developments has been the introduction and wide adaptation of the Internet, opening opportunities for affordable, easy and accessible communications and information share. The Internet offers such enormous improvement in operating and market effectiveness that more traditional ways of doing business no longer seem feasible, whilst new and increasingly stronger inter-firm relationships become more accessible.

The Internet radically effects how a firm communicates with its universe; its suppliers, buyers, its customers and consumers. Two-way communication channels allow firms to build relationships with each of these stakeholders. But these advances are relatively new and need to be carefully applied. It was not until 1994 that the US National Science Federation[1] ended its ban on the commercial use of the Net. This was followed by an increasingly accessible and affordable range of hardware and software; including user-friendly web browsers such as Netscape and Explorer. Doyle (2000) observes the changes such technologies have brought about,

> *"...now anyone connected to the Net can communicate with anyone else through open, universal standards, instantaneously and at almost zero cost."* (p.322)

Having discovered the benefits brought through their ability to share up-to-date on-line information with chosen business partners, companies have not been slow to take advantage of these opportunities. For example, GM, Ford GE and Oracle all plan to transfer all their purchasing to the web within the next two years (Doyle 2000), largely through business-to-business (B2B) relationships. Indeed 80% of Internet spending is through B2B transactions.

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[1] The National Science Foundation was the Internet regulator from its birth in the 1960's as an indestructible military defence communications system.

Firms have adapted the Internet to work for them on three levels: 1) through the public Internet, 2) through the Intranet and 3) through the Extranet.

The *public Internet* includes the entire Web and Net activities of a firm that are available to everyone and is usually managed by the marketing department in most companies. The *Intranet* is the information available on the Internet but that can only be viewed internally, by company employees. The objective of sharing information throughout the company helps drive inter-function co-ordination amongst departments and/or business units within a single organisation. This has enabled organisations to redesign their value chains and change the way they design, produce, market, deliver and support their products and services. This deems redundant the need for costly hierarchical structures and presents in its place, a more flexible, project-based, informal network approach, allowing individuals to work in cross-functional teams.

The *Extranet* combines features of both the public Internet and Intranets, limiting access through the use of registration schemes and passwords. This form of networking is sometimes associated with payment mechanisms and is widely used in the electronic publishing industry. Extranets are perhaps the most consequential development for supply chain configurations because they are so central to business-to-business commerce. Bayles (1998) explains how Extranets connect the Intranet of an organisation with its trading partners, suppliers, distributors and customers (also see Martin, 1999; Pereira, 2001). This affords the supply chain new methods of integration through carefully co-ordinated relationships instead of the more traditional methods associated with vertical financial ownership of supply chain stages. Doyle (2000) observes this phenomenon, citing the example of the Levi Jeans Company,

> *"Extranets.... can seamlessly integrate buyer and seller into a virtual business. A typical example is the jean maker Levi. Over the Internet it continuously obtains information on the sizes and styles of its jeans being sold by its major retailer. Levi then electronically orders more fabric for immediate delivery from the Milliken Company, its fabric supplier. Milliken, in turn, relays an order for more fibre to Du Pont, its fibre supplier. In this way the partners take out costs throughout the supply chain, minimise*

inventory holding and have up-to-date information to quickly respond to changes in consumer demand." (p.8)

Doyle (2000) goes on to suggest that the bargaining power of buyers is also radically increased in situations where price is more important than partnership. He argues that the new availability of information can undermine a supplier's relationship with his customers by increasing the information available to buyers and reducing the costs of switching suppliers (*c.f.* Porter, 2001; Shaffer & Zhang, 2000).

These new applications of information technology (sometimes referred to as information and communications technology (ICT) or co-ordination technology because of its co-ordinating role in supply chain situations) are resulting in the elimination of supply chain stages between supplier and consumer. Buyers are discovering that they do not always need retailers, agent or brokers. They are now able to buy at lower cost and more conveniently, directly from the manufacturers over the telephone or on the Internet. This process, known as *disintermediation*, has seen the rise of companies such as Dell computers who have been able to take advantage of this strategic opportunity (Magretta, 1998). The shortened supply chains bring their own set of benefits for manufacturers and service providers (Pereira, 2001). Where firms are able to deal directly with the consumer they also have access to consumer information; successful product-lines, consumer problems or wish lists and consumer profiles (Wise & Baumgartner, 1999). This database of information affords the organisation learning opportunities about consumer wants and buying behaviours. The seller is then in a unique position to tailor customer-orientated offerings for individual consumers (Pereira, 2001; Langabeer & Rose, 2001; Peppers & Rogers, 1997).

These changes to supply chain configurations are converting the marketing assets of many traditional market leaders into liabilities (Doyle 2000). Fixed assets tied up in plant and machinery, retail outlet and real estate are limiting to an organisation's flexibility when they are not able to focus on such assets as part of their core business capabilities and thus achieve economies of scope and scale.

1.2.4 Rising Customer Expectations

Customer's rising expectations, increase the pressure on firms to maximise the efficiency and effectiveness of their operations. Any slack resources in this fiercely competitive environment erode an organisation's profit margins and threaten its long-term survival. Whilst the pressure to be demand-driven grows, the need for efficiency has not receded. Improvements in product quality through initiatives such as ISO 9000 and Total Quality Management (TQM), improvements in technologies that have facilitated instant communications, information share and technical innovations have brought new solutions to communications (Doyle, 2000). With the facilities offered through information technologies, firms are able to avoid high manufacturing costs associated with market segmentation, in which an increasing number of product lines are offered to an increasing number of small niche markets. Rather the concept of mass customisation,[2] whereby firms build databases and manufacturing systems around learnt customer buying preferences and behaviours, becomes operationalised (Liechty, Ramaswamy & Cohen, 2001; Pereira, 2001).

[2] Zipkin (2001), recognises some of the limitations of mass customisation urging managers to carefully assess the technology and market demand before committing their companies to such a strategy.

1.3 Origins of The Research

This research sets out to explore which supply chain configurations are most likely to increase a firm's ability to be market orientated and thus leverage business performance through the adoption of a demand side perspective. The value in understanding more about market orientation comes from the empirical evidence that suggests market orientation is associated with improved business performance. Without strong business performance firms can rarely survive long-term. Previous research has shown that the structure of a firm (e.g. Galbraith & Stiles, 1983; Craig & Douglas, 2000; Narasimhan & Das, 2001) and its market orientation (e.g. Narver & Slater 1990; Shohm & Rose, 2001) both affect business performance. However, the relationship between market orientation and structure has received little attention. Kohli & Jaworski (1990) suggest that organisational systems are an antecedent of market orientation and provide further support for this theorised relationship.

As we have seen, in today's turbulent and competitive business environment an increasing number of firms are moving away from traditional, fully vertically integrated supply chains and moving towards vertical de-integrated forms: seeking control of the supply chain through the management of inter-firm relationships. Might this explain how firms are able to minimise cost and asset risk without losing the supply chain control previously associated with full vertical integration?

Relationship marketing has emphasised the importance of building long-term relationships between suppliers and customers (Parvatiyar, Sheth & Whittington 1992; Grönroos, 1995; Berry, 1995). These relationships play an increasingly important role today, replacing ownership strategies to form vertically de-integrated supply chain configurations. We conceptualise Vertical De-integration (VDI) as the supply chain configurations that comprise the advantages of both ownership and transactional relationships. Implementing control of the supply chain through a combination of ownership and relationship strategies might better align the supply chain with customer demand and thus improve business performance.

By conducting forty semi-structured in-depth interviews with managers at a matched pairs sample of firms, this research sets out to explore the relationship between the market orientation and the integration of firms suggesting that: 1) three principle approaches to integration can be identified; 2) nine key supply chain configurations exist; 3) de-integration upstream can increase efficiency; 4) integration downstream, either through ownership or can increase effectiveness.

1.4 Theoretical Vacuum

The importance of understanding the relationship between supply chain configuration and market orientation increases with the number of firms pursuing vertical de-integration, forming web-like networks of independent organisations. Dell for example, do not own any of the manufacturing operations for their branded computers. They position themselves at the end of the supply chain, acting as direct sales agents and using customer information, acquired through downstream integration, to influence long-term relationships with upstream, de-integrated suppliers (Magretta 1998). Such vertically de-integrated forms have been given various titles: *'networks'* (Miles & Snow 1986; Thorelli 1986), *'value-adding partnerships'* (Johnston & Lawrence 1988), *'alliances'* (Ohmae 1989), *'shamrocks'* (Handy 1990) and *'virtual integration'* (Magretta 1998). As Webster (1992) notes,

> *"...all are characterised by flexibility, specialisation, and an emphasis on relationship management instead of market transactions."* (p.3)

We suggest that it is this flexibility, specialisation and emphasis on relationship management that enables VDI firms to increase their market orientation and thus leverage business performance (*c.f.* Porter, 1980). Furthermore, firms need not own 100% of the supply chain to enjoy the benefits of bonding their interests to another's. The bond could take the form of co-operative ventures, minority equity agreements, loans, pre-purchase credits, specialised logistical facilities or *'understandings'* regarding customary arrangements (Porter 1980; Harrigan 1984). Thus, building trust, commitment and shared market intelligence increases control or *'influence'* over

supply chain members (Amaldoss, Meyer, Raju & Rapoport, 2000; Hammer, 2001; Sawhney & Parikh, 2001). *Influence* may also increase market orientation.

Market orientation has been defined as the implementation of the marketing concept and includes customer orientation, competitor orientation and inter-functional co-ordination (Narver & Slater, 1990). Before we discuss the advantages that VDI may bring to market orientation, it is appropriate to examine the parameters within which VDI operates. These parameters are set by a firm's supply chain. As we have seen, the supply chain comprises a series of stages, where functions are performed to convert raw materials into desirable products. Each of the stages adds value to the product and therefore has its own value chain. The value chain concept (Porter, 1980), divides the firm into value-creating activities (e.g. to design, produce, market, deliver and support the firm's products), in order to understand the behaviour of cost in the business, and the potential sources of competitive differentiation (*c.f.* Champion, 2001).

Supply chain stages are referred to in the marketing literature as distribution channels, or marketing channels. Channels of distribution are therefore, all those organisations through which a product must pass from its raw material state, through production, to consumption. To achieve the transformation from raw material to end product efficiently, requires a high degree of control of the entire supply chain (*c.f.* Lee, Padmanabhan & Whang, 1997; Pereira, 2001). The literature suggests that control can be achieved through two key factors; 1) through ownership – the firm takes financial ownership (e.g. 100%) of other channel members adopting a vertically integrated form (Harrigan 1986; Wise & Baumgartner, 1999; Burgelman & Doz, 2001), and 2) through inter-firm relationships – the firm builds and manages relationships with channel members (Grönroos, 1995; Frohlich & Westbrook, 2001; Pepall & Norman, 2001). For the purpose of this research we refer to financial ownership as *'ownership'* and to the building and management of inter-firm relationships as *'influence'* factors.

Considering organisational form, Kohli & Jaworski (1990) note that the literature pays little attention to the contextual factors that may make market orientation appropriate for a particular business. They suggest that organisation-wide

characteristics, (labelled '*organisation systems*') are antecedents to market orientation. Further, barriers to market orientation are related to supply chain configuration. Lundstrom (1976) and Levitt (1969) discuss departmentalisation or specialisation as a barrier to communication. Additionally, Stampfl (1978) argues that greater formalisation and centralisation make organisations less adaptive to market place and environmental changes (also see Williamson, 1991; Schlegelmilch & Ram, 2000). Historically, formalisation and centralisation have been found to be inversely related to information utilisation (Deshpande & Zaltman 1982). In our context this corresponds to being *'responsiveness to information'*. Thus the literature suggests that structural characteristics of an organisation can affect market orientation.

If market orientation is shown to impact on business performance, then the question presents itself as to which supply chain configurations are most appropriate for achieving market orientation. Therefore our investigation must be threefold, into: 1) the type and level of integration 2) the level of market orientation associated with these integration typologies and 3) the level of business performance outcome. To date there is no empirical research to help us model the relationship between supply chain configuration and market orientation. What does exist is a substantial body of literature that theoretically and empirically supports the following relationships:

- market orientation has a positive effect on business performance (e.g. Narver & Slater, 1990; Greenley 1995a; Shoham & Rose, 2001),
- transactional relationships have a positive effect on business performance (Williamson, 1985; Ford , Cotton, Farmer, Gross & Wilkinson 1993; Alexander & Young, 1996),
- development of inter-firm relationships can bring performance benefits to supply chain members (Gummesson, 1987; Boyle, Dwyer, Robicheaux & Simpson, 1992; Gassenheimer, Sterling & Robicheaux, 1996; Ford & McDowell 1999), and
- vertical integration can have a positive effect on business performance in specific circumstances (Harrigan 1986; Burgelman & Doz, 2001).

Some anecdotal evidence exists to suggest that VDI has a positive effect on business performance (Magretta, 1998) and that VDI may be positively associated with market

orientation (Kohli & Jaworski, 1990; Webster 1992). Finally, the demand chain literature suggests the need to align the supply chain with customer demand and thereby puts the customer at the centre of supply chain strategy (Langabeer & Rose, 2001; Cairncross, 2002). We suggest that market orientation has maximum effect on business performance when the supply chain configuration adopted takes a specific VDI form – de-integrated upstream and integrated downstream.

1.5 The Framework For The Research

The lack of empirical and theoretical research into the proposed relationship between supply chain configuration, market orientation and business performance raised three key questions about our understanding of the concepts and their association with each other. Forming the backbone of this thesis, our research questions ask:

R_1: What types of integration exist within the supply chain?

R_2: What is the effect of supply chain integration on market orientation and business performance?

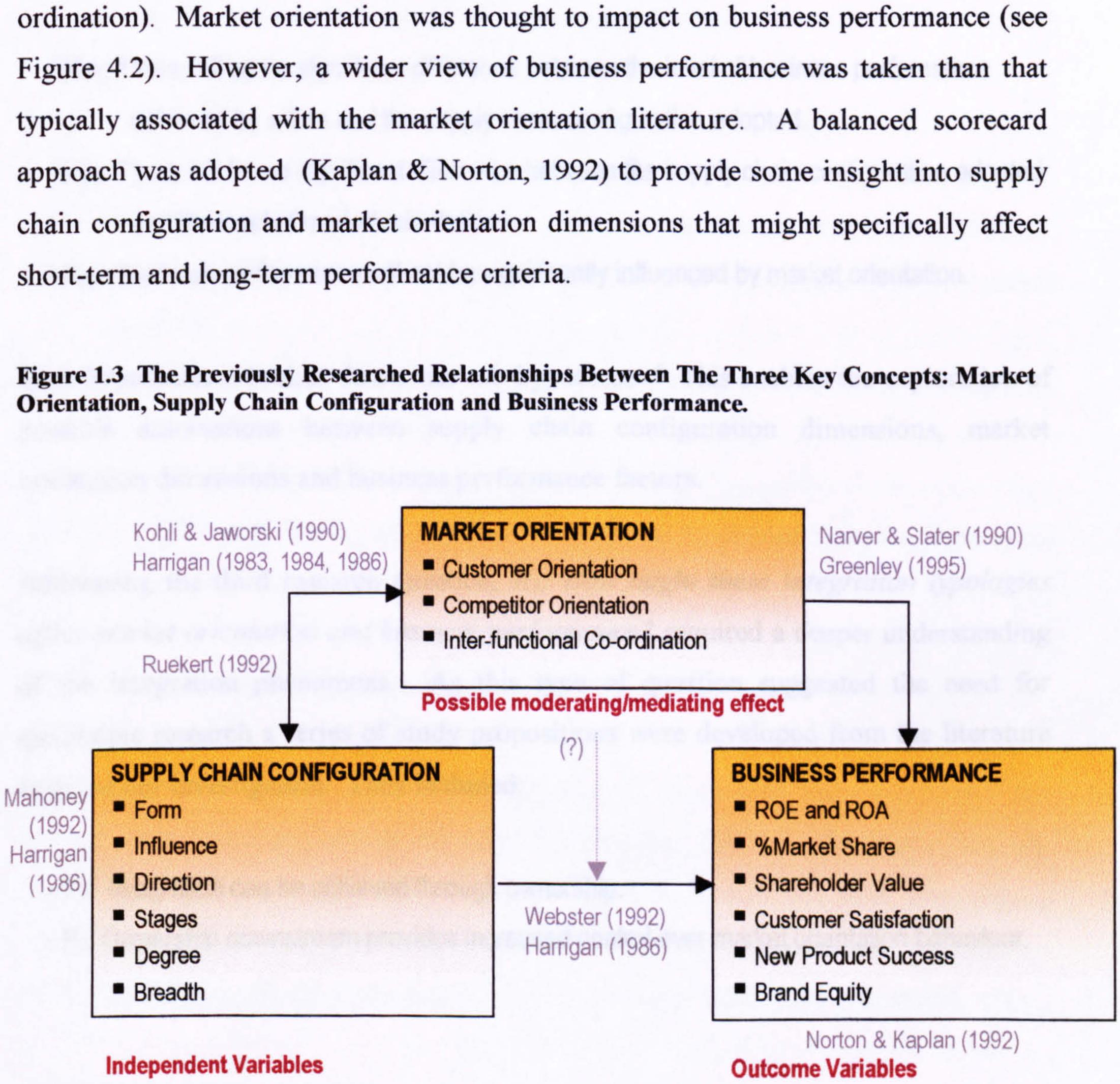
R_3: How might these integration typologies affect market orientation and business performance?

These research questions then drove the development of the theoretical framework. The primary objective of this research was to understand the relationship between supply chain configurations, market orientation and business performance (R_3). However, we could not explore this until there was a clear understanding of supply chain configuration typologies (R_1). Further, dependent on supply chain configuration type, we needed to know what effect this might have on market orientation and business performance (R_2). Whilst the '*What*' question associated with R_1 and R_2 suggested a survey methodology, the '*How*' question for R_3 suggested a case study approach (Yin, 1989). Consequently a triangulated methodology was adopted (see Chapter 5).

After examining the current literature and carrying out exploratory interviews with managers in order to gain an understanding of the concepts, we then re-examined the

literature for references to relationships between the three concepts (see Figure 1.3). The resulting theoretical framework suggested that supply chain configuration was a multi-dimensional construct consisting of *form* (form of ownership e.g. 100%, alliance, franchise agreements), *influence* (achieved through the implantation of relationship focus, channel leadership, channel communications, channel power and co-ordination technology), *direction* (whether integration occurred upstream or downstream), *stages* (the supply chain functions carried out), *degree* (the proportion of total output purchased or sold to sister companies) and *breadth* (value chain activities). These dimensions were thought to impact on the dimensions of market orientation (customer orientation, competitor orientation and inter-functional co-ordination). Market orientation was thought to impact on business performance (see Figure 4.2). However, a wider view of business performance was taken than that typically associated with the market orientation literature. A balanced scorecard approach was adopted (Kaplan & Norton, 1992) to provide some insight into supply chain configuration and market orientation dimensions that might specifically affect short-term and long-term performance criteria.

Figure 1.3 The Previously Researched Relationships Between The Three Key Concepts: Market Orientation, Supply Chain Configuration and Business Performance.



The literature review went some way towards identifying supply chain configuration typologies (R_1[3]). Three approaches to the supply chain were distinguished; transactional relationships, inter-firm influential relationships (labelled '*influence*') and ownership (*c.f.* Webster, 1992). These approaches could differ upstream and downstream. This allowed us to build a taxonomy of supply chain configurations[4] identifying nine distinct configurations (Figure 4.3).

Having defined the three concepts, three key hypotheses were developed in line with the survey method. They represent plausible explanations for the research question R_2[5] that may be statistically tested:

$H_{0/1}$: There will be no significant difference between the level of business performance achieved by a firm and the supply chain configuration adopted.

$H_{0/2}$: There will be no significant difference between the supply chain configuration adopted and the level of market orientation.

$H_{0/3}$: Business performance will not be significantly influenced by market orientation.

Each hypothesis is broken down into sub-hypotheses.[6] This enables the exploration of possible associations between supply chain configuration dimensions, market orientation dimensions and business performance factors.

Addressing the third research question, *R_3: How might these integration typologies affect market orientation and business performance?* required a deeper understanding of the integration phenomena. As this type of question suggested the need for qualitative research a series of study propositions were developed from the literature to guide our investigation. They included:

P_1: Integration can be achieved through ownership.

P_2: Ownership downstream provides increased control over market orientation behaviour.

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[3] R_1: What types of integration exist within the supply chain?
[4] Chapter 4, Section 4.8.3
[5] R_2: What is the effect of supply chain integration on market orientation and business performance?
[6] Chapter 5, Section 5.2.5.1

Influence is implemented...

P_3: Through the development of trust within inter-firm relationships.

P_4: Through the development of commitment.

P_5: Through the development of co-operation.

P_6: Through strong channel leadership.

P_7: Through good channel communications.

P_8: Through channel power.

P_9: Through co-ordination technology.

P_{10}: The lack of these components in a relationship marks a *'Transactional'* relationship.

P_{11}: Integration can be achieved through inter-firm relationships.

P_{12}: Integration downstream drives market orientation.

P_{13}: Non-ownership upstream does not negatively effect market orientation.

P_{14}: Inter-firm relationships upstream can provide synergies that drive market orientation.

P_{15}: Ownership downstream provides barriers to entry which increase competitor orientation.

P_{16}: Transactional relationships downstream weaken a firm's capability to implement market orientation.

P_{17}: Tight management of inter-firm relationships is vital when the method of integration downstream is not ownership.

Therefore, the research methodology had to enable us to address both the hypotheses and the study propositions.

1.5.1 Methodological Approach

Grounded in the Realism ontology[7], our research recognises that both states and process described by theories do exist (Outhwaite, 1987). Therefore the data collection method must fit considerations of the type of data required. We adopt a triangulated approach, i.e. collecting both qualitative and quantitative data, from a matched pairs sample of forty firms. The qualitative data were concerned with

[7] Realism claims that theories are either true or false; science aims at the truth of how the world behaves. This has two major implications for the choice of method: 1) the data must be collected in a scientific manner; 2) the data collection method must *'fit'* considerations for the type of data required. For a more detailed discussion on Realism see Chapter 5, Section 5.2.4

defining the typologies and dimensions of the integration (Appendix 1). The quantitative data were concerned with identifying the levels of integration upstream and downstream, measuring the levels of influence within inter-firm relationships where it occurred and finally measuring levels of market orientation and business performance (Appendix 2).

Whilst it must be recognised that supply chain configuration is often dictated at the corporate level (Harrigan, 1986; D'Aveni & Ilinitch, 1992), it is the responsibility of local managers to manage and integrate both market orientation and inter-firm relationships (Webster 1992). Further, Quinn & Hilmer (1995) suggest that corporate level decisions are very likely to be affected by business unit managers. Indeed it became clear during the initial exploratory fieldwork that influence within inter-firm relationships was essentially operationalised at the business unit level. Based on these inputs from the literature and fieldwork, the business unit became the unit of analysis adopted in this research.

Business managers were targeted as key participants in both the qualitative and quantitative data collection exercise. The decision to target managers related to the relevance of top managers in selecting strategic supply chain partners and their role in implementing the development and maintenance of inter-firm relationships (Penning, Hambrick & MacMillan, 1984; Anderson & Weitz, 1986; Bucklin & Sengupta, 1993; Day, 1995). Management's role in supply chain integration was further corroborated during the exploratory stage of the fieldwork. Managers were familiar with the areas covered by the questionnaires and acknowledged their direct involvement with integration action.

To gain insight into supply chain configuration and its links with market orientation and business performance this research draws on both existing literature and primary data, including exploratory interviews, a small scale pilot and main study survey and main study in-depth interviews at over forty business units with more than eighty managers. The triangulated study thus takes a predominantly qualitative approach, whilst relying on quantitative inputs from the limited survey data (Denzin, 1970; Janesick, 2000). Two reasons underpin the selection of this mini-case approach as the main empirical research tool: first, the research aims to describe methods of

integration and their implementation; and second, the mini-case approach attempts to investigate possible relationships between the integration typologies and market orientation through a cross case analysis.

One final justification of the methodological approach must be made – the selection of the *'matched pairs sample comparison group'* method (Bharadwaj, 2000). This is a methodology employed to empirically assess the relationship between a sample of firms with a superior level of business performance and their relationship with their supply chain configuration and market orientation. It is a popular methodology that has been used in several research studies in accounting, finance and marketing literatures (*c.f.* Bharadwaj, 2000; Balakrishanan *et al.*, 1996; Jain & Kini, 1995; Kalwani & Narrayandas, 1995; Wong, Saunders & Doyle, 1992) to compare levels of interest variables across two samples; the treatment sample, in this case, a sample of firms with long-term superior business performance (labelled high performers), and a carefully selected control sample of firms matched to the treatment sample by type (labelled low performers). The market orientation levels of the matched control sample of firms serves as a benchmark and helps remove the confounding effects of extraneous variables and market forces that could influence supply chain configuration (*c.f.* Collins & Porras, 1995). Details regarding measures, methods and case/sample selection are discussed in Chapters 3 and 5 respectively. This approach offers the versatility required to collect both qualitative and quantitative data in a meaningful format from a carefully selected sample, taking into consideration the time and financial constraint imposed by a PhD research programme.

1.5.2 The Analytical Approach

Data analysis included; within case and cross-case analysis, exploratory factor analysis (EFA), frequency analysis, discriminant analysis and measures of association. Within case analysis allows us to identify the dimensions of integration operationalised by managers in their inter-firm relationships. Cross-case analysis enables us to see emerging patterns between successful and unsuccessful supply chain configurations. These are further supported through the examination of frequencies. Exploratory factor analysis explores further the reported dimensions of *influence* in inter-firm relationships and provides preliminary support for our theorised multi-

dimensional construct. Finally discriminant analysis examines the various supply chain configuration typologies identified and seeks to explain their existence through the examination of business performance and market orientation levels. Theoretically discriminant analysis should provide us with evidence of causal relationships but because of our limited number of cases promising findings have been further supported through the calculation of lambda (Norušis, 1998) – demonstrating the existence of but no direction of the theorised relationships.

1.6 Research Contribution

As noted earlier, this study attempts to add another strand of understanding in the supply chain debate. It aspires to make key theoretical and managerial contributions. At a theoretical level these contributions are: the *extension of existing theory*, the *conceptualisation(s)* and *measurement*, *empirical testing of theory* and *generalisation*. There are *managerial contributions* from the study, which suggest determinants of integration typologies in order to leverage market orientation and business performance. In this sense the study also highlights possible drivers and beneficial outcomes of market orientation and supply chain configuration when the two approaches are merged.

More specifically, in *theoretical* terms, this research expands on existing views of supply chain configuration by focusing on a holistic conceptualisation of supply chain configuration and relationship management at the business unit level, in a business-to-business context. In so doing, it aims to extend rather than replace existing literature. It identifies three distinct approaches to supply chain integration, then clarifies the construct of *influence* by developing indicators of the concept and subsequently measuring, testing and validating those measures via an empirical study.

The research also sets out to deepen understanding of the realm with which *supply chain configuration* is concerned exploring its inter-relationships with market orientation dimensions, converging in a demand-driven chain. The study later systematises and analyses these relationships.

The complexity of the phenomenon under investigation required that the study drew on a wide theoretical background. The research is thus also able to contribute to existing knowledge in a number of theoretical areas. It thereby contributes to vertical integration theory by showing the relationship between market orientation and supply chain configuration; to market orientation and management theory by providing empirical support for the benefits of demand-driven supply chain configurations; and, relationship marketing theory by conceptualising and testing a scale for influence in inter-firm relationships.

The scale developed for *influence* adapts and tests measurements previously applied in isolation (and not as part of the influence construct). This should help future researchers to operationalise a number of key variables in their examination of inter-firm relationships.

Finally, the investigation contributes to both theory testing and generalisation. The sampling of a cross section of UK based firms, differing in size, industry sector and differing supply chain stages enables generalisation from the hypothesis testing. The testing of the market orientation/business performance hypothesis (H_3) from previous investigations also allows this study to replicate and repeat test so that this hypothesis can be supported or refuted.

In terms of *managerial implications*, the study offers several contributions. By developing an understanding of demand-driven supply chains, managers may become better equipped to make use of a tool that is within reach of and is potentially rewarding for all firms. In addition, the study helps to explain the forces that are driving the vertically de-integrated supply chain forms recommended by this thesis. This may assist managers when making strategic sourcing decisions, giving them a greater understanding of the potential difficulties and expected outcomes.

1.7 Structure of the Thesis

This thesis is organised in eight chapters plus appendices and references. Chapter 1 introduces the rationale for and the background to the research, its contribution and purpose.

Chapter 2 reviews the supply chain configuration concept. Supply chain configuration is incorporated into five main theoretical perspectives: transaction cost theory, vertical integration theory, the strategic view, the resource-based-view and the relationship marketing view. An overview of these perspectives is presented.

Chapter 3 introduces the population of the UK firms and presents an overview of the changing dynamics in this marketplace. The exploratory research procedure is explained and key findings are presented. Finally, the outcomes of the exploratory stage result in the presentation of the pilot study and questionnaire development stage to be adopted in the main study.

Chapter 4 presents the theoretical framework that guides the case analysis in Chapter 6 and is tested in Chapter 7. Drawing on several strands of the economics, operations management and marketing literature, constructs are analysed and several of the determinants and outcomes of supply chain configuration are described. The study propositions and research hypotheses are proposed and a taxonomy of possible supply chain configurations is presented. Finally an operational model is presented.

Chapter 5 presents the research methodology used to develop the supply chain configuration construct and test the theorised relationships with market orientation and business performance described in Chapter 4. The methodological approach adopted together with the various steps and procedures associated with data collection and analysis are discussed in detail.

Chapter 6 presents the case analysis and findings for the data collected from the matched pairs sample of forty firms. Following the framework laid out in Chapter 4, the cases are used to illustrate the three theorised approaches to integration before

examining each of the supply chain configurations found. The supply chain configurations revealed some interesting findings suggesting that downstream integration was closely associated with stronger market orientation and business performance.

Chapter 7 presents the statistical analysis and findings for the quantitative data collected from our matched pairs sample. Using data simplification techniques, an exploratory factor analysis is applied to the influence construct. The analysis, used in a confirmatory manner as necessitated by the small sample size, suggests that influence incorporates four dimensions. Descriptive statistics were then applied to these factors, the six supply chain configuration typologies and ultimately to the business performance variables. The final stage of the statistical analysis was the hypothesis testing. Two statistical tools were applied: discriminant analysis and measures of association.

Chapter 8 presents the conclusions of the thesis through a discussion created around the theoretical and empirical findings. It highlights the research contribution of the study. Managerial implications of the findings are suggested. The chapter concludes with a discussion of the research limitations and recommends directions for future research.

Finally, references and appendices are presented. The appendices comprise copies of the research questionnaires and covering letters.

Chapter 2 will now outline the existing work in the conceptualisation of supply chain configuration in order to: 1) establish the scope of supply chain configuration; and, 2) examine its historic relationships with market orientation and business performance.

CHAPTER 2

The Literature Review

Introduction

The history of marketing has been about enabling firms to create customer value. As we have seen, Marketing as an academic subject dates back to about 1910 when the Midwestern American land-grant universities became strongly involved with the farming industry and concerned themselves with the processes by which products were brought to market and prices determined. From these early beginnings, when marketing had no managerial focus, the discipline has developed profoundly. The analytical frameworks of the managerial approach, introduced in the 1950s and 1960s (*c.f.* Alderson 1957; Kotler, 1967) drew on the economics, behavioural sciences and quantitative methods. As Webster (1992) observes,

> *"At the root of most of the new managerial texts and the evolving research literature of marketing science was the basic microeconomic paradigm, with its emphasis on profit maximisation (Anderson, 1982). The basic units of analysis were transactions in a competitive market and fully integrated firms controlling virtually all of the factors of production (Arndt, 1979; Thorelli, 1986). Market transactions connected the firm with its customers and with other firms (Johnston and Lawrence 1988)."* (p.3)

This raises an important question. If, as the literature suggests, vertically integrated firms have de-integrated assuming new organisational forms, how does a firm's supply chain configuration affect its ability to achieve its marketing objectives? It is against this background that we consider the marketing concept as it is defined today and its implications for supply chain configurations.

We begin with an examination of the marketing orientation literature, which suggests how we might interpret the marketing concept and alludes to a possible relationship between market orientation and the supply chain configuration. Secondly we examine the literature in an attempt to define clearly what a supply chain configuration is, its

dimensions and the factors that affect its constitution. Five key areas are identified; transaction cost theory, vertical integration theory, strategic view, resource-based theory and relationship marketing. Each stream of literature aims at offering a framework for correctly reaching *'make or buy'* decisions. However, with the exception of the relationship marketing literature, all these theories are based on the efficiency perspective, i.e. the most efficient strategy applied to each supply chain stage.

The relationship marketing literature differs in that it considers the dimensions of an inter-firm relationship and the most appropriate behaviour for firms managing such relationships. These considerations are not set in supply chain configuration context but rather in the isolation of a single business to business relationship. Research has been focused on dyadic and at best triadic sets of firms. This is perhaps not surprising considering the complex nature of inter-firm relationships. Despite this shortfall, the relationship marketing literature has an important contribution to make to the efficiency perspective, enabling the firm to define its objectives in broader business performance terms than financial performance alone. This is the effectiveness perspective.

A significant contribution to our understanding of supply chain configuration that moves the debate beyond the seminal works of Williamson (1975) on transaction cost theory, is the work of Harrigan (1983, 1984, 1985a, 1986) in her recognition of supply chain configuration as a multi-dimensional construct. Equally significant is Mahoney's (1992) recognition of the *'isomorphic nature'* of vertical financial ownership and vertical contracts (i.e. inter-firm relationships) in achieving the same outcomes. Webster (1992) draws these concepts together in his considerations for the changing role of marketing which he considers imperative for the de-integrated supply chain configurations of the twenty-first century.

2.1 A Summary of the Literature & Conclusions

The literature review presented in this chapter is an attempt to provide first a context through which the marketing concept is thought to be inextricably linked with the concept of supply chain configuration and secondly, to summarise economic and managerial theories of industry and the firm. The objective is to set an enriched framework to analyse management behaviour and corporate strategy decisions regarding the design and control of supply chains. The six key approaches can be summarised as follows:

a) *Market orientation* is a multi-dimensional construct, which sets out to operationalise the marketing concept. The literature examines market orientation from two perspectives; company culture and behaviour. The behavioural perspective has provided marketeers with a validated and reliable measure comprising customer orientation, competitor orientation and inter-functional co-ordination (Narver & Slater, 1990). An increasing volume of empirical research adopts this measure to provide evidence for the theorised market orientation-business performance link, the moderating factors on this link, the forms of market orientation and the identity of antecedent to market orientation. One antecedent of market orientation is said to be organisational structure (Jaworski & Kohli, 1993). The supply chain configurations adopted are part of an organisation's structure but have received only limited attention in the literature.

b) *The transaction cost approach* (Coase, 1937; Williamson, 1971, 1975) has been developed with the key objective of identifying suitable supply chain configurations by understanding their boundaries within markets. This is done through a *'transaction cost'* analysis. In other words, firms must optimise their supply chain configuration through transaction cost reduction and not via the products or services which are the object of the transaction. Firms should take ownership of supply chain stages when transaction costs can be reduced by substituting markets with hierarchical, vertically integrated organisations.

c) *The vertical integration approach* concerns itself with the vertical financial ownership of supply chain stages. Inherent to the concept of vertical financial integration is the elimination of contractual or market exchanges and the substitution of internal transfers within the boundaries of the firm via internal development or merger (Mahoney, 1992). With its background in economics, this approach has been developed through the strategy and industrial organisation paradigms, which have resulted in a general theory for predicting and prescribing vertical integration.

d) *The strategic view* reflects the most dominant theme in the strategy literature during the 1970's and most of the 1980's. During this period most developments in strategy analysis concentrated on the industry environment of the firm and its competitive position in relation to rivals. Explanations of supply chain configuration follow the assumption that vertical integration creates barriers to entry. The strategic view focuses on the *Structure-Conduct-Performance* paradigm, which assumes that market structure is responsible for industry performance. Vertical integration is seen as an element of market structure capable of inhibiting competition (Porter, 1985).

e) *The resource-based view* focuses on the internal environment of the firm, analysing the resources and capabilities of the firm as the principal basis for strategy and primary determinants of profitability (Barney, 1991). Protagonists of this view believe that *'make-buy'* decisions are dependent on the firm's ability to identify itself and outline its purpose. A firm is only then able to usefully identify the resources it has and needs to develop, together with the capabilities this generates. Any activity that is not aligned to a firm's *'core competence'* may be outsourced without detrimental effect (Hamel & Prahalad, 1994). Thus, according to the resource-based view, a firm's supply chain configuration is determined by the way it defines itself.

f) *The relationship marketing approach* focuses on the dynamics of inter-firm relationships. Long-term inter-firm relationships are viewed as a more effective form of integration than ownership (Keep, Hollander & Dickinson, 1998) and are

considered a vital component of increasing a firm's ability to align itself with its markets (Webster, 1992).

Following a review of the market orientation literature, the different theoretical approaches explaining supply chain configuration are discussed in the remainder of this chapter.

2.1.1 Market Orientation

Whilst McKitterrick (1957) and Felton (1959) were conceivably the first academics to formally discuss the marketing concept,[8] marketing today is perhaps best thought of as a philosophy of doing business that can be the central ingredient of a successful organisations' culture (Houston 1986; Wong & Saunders, 1993; Hunt & Morgan, 1995). Or as Deshpande & Webster (1989) observe,

> *"...The marketing concept defines a distinct organisational culture... that put[s] the customer in the centre of the firm's thinking about strategy and operations"* (p.3)

An examination of the literature indicates that both *'marketing'* orientation and *'market'* orientation have been used interchangeably to describe the implementation of the marketing concept. Prior to the articles of Shapiro (1988), Narver & Slater (1990) and Kohli & Jaworski (1990), authors of articles addressing this subject consistently referred to the *'marketing concept'* or *'marketing orientation'*. However, these seminal 1990 articles, in which the authors set out to develop measurements for the marketing concept, use the term *'market orientation'* to define their constructs. Subsequent articles in this field almost exclusively adopt this term.

This use of language has been surrounded by some controversy. Whilst in a later article Slater & Narver (1995) state that they follow the practice of Shapiro (1988) and Deshpande, Farley & Webster (1993), and consider the terms market orientated, market driven, and customer focused to be synonymous, Hunt & Morgan (1995) draw

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[8] McKitterick (1957) does mention in his article that he read about elements of the marketing concept as early as the 1930's and 1940's in the Journal of Marketing and the Harvard Business Review.

a distinction between the marketing concept and market orientation. Wrenn (1996) defines these two concepts, observing,

> *"... while the marketing concept is a way of thinking about the organisation, its products and its customers, a marketing orientation is doing those things necessary to put such a philosophy into practice."* (p.34)

The marketing concept is considered a philosophy, which can be a core part of a corporate culture, and marketing orientation is considered to be the implementation of the marketing concept (McCarthy & Perreault, 1990). Kohli & Jaworski (1990) accepted this definition:

> *"...in keeping with tradition (e.g. McCarthy & Perreault, 1984, p.36) we use the term market orientation to mean the implementation of the marketing concept."* (p.1)

Market orientation, in contrast to the marketing concept (and its related construct marketing orientation), involves a concern with both customers and competitors (Webster, 1994; Slater & Narver, 1995). This distinction has been given prominence by Hunt & Morgan (1995) who maintain that market orientation,

> *"...is not the same thing as, nor a different form of, nor the implementation of the marketing concept. Rather, it would seem that market orientation should be conceptualised as supplementary to the marketing concept. Specifically,... we propose that a market orientation is 1) the systematic gathering of information on customers and competitors, both present and potential, 2) the systematic analysis of the information for the purpose of developing market knowledge, and 3) the systematic use of such knowledge to guide strategy recognition, understanding, creation, selection, implementation and modification."* (p.1)

As Wrenn (1996) explains, this definition most obviously distinguishes market orientation from marketing orientation and the marketing concept, by what it contributes (a focus on competitors and potential as well as present customers) and by

what it omits (inter-functional co-ordination). This definition is consistent with the definition provided for 'market driven' (*cf.* Day 1984; Day & Wensley 1988). Both constructs have been the object of a considerable and growing body of research to determine the precedents, prevalence and consequences of this significant area of interest.

Whilst Jaworski & Kohli (1996) themselves identify differences between the various definitions of market orientation,[9] they also note four important similarities;

- Each definition focuses on the customer as the core component of the definition.
- The various definitions entail an external orientation (a focus outside organisational boundaries).
- Each definition acknowledges the importance of being responsive to customers.
- Each definition acknowledges that market orientation is more than a focus on just the customer.

Despite Jaworski & Kohli's comments concerning importance of the differences and similarities between the various definitions of market orientation, many authors writing on the subject make no such distinction. Perhaps this is because as Jaworski & Kohli observe, whilst both cultural and behavioural perspectives both appear to have merit, values and beliefs may be more prone to *'social desirability'* than the measures of actual behaviours or activities and therefore the measures for the behavioural perspective are the most widely adopted.[10]

A substantial body of empirical work into market orientation has focused on the testing and development of the scale proposed by Narver & Slater (1990) and the framework presented by Kohli & Jaworski (1990), in both Western environments (e.g.

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[9] In their 1996 paper Jaworski & Kohli review four definitions of market orientation. They distinguish between the cultural perspective of market orientation, i.e. Deshpande, Farley & Webster, 1993 (whereby proponents focus on the beliefs and values held by an organisation), and the activities/behavioural perspective of market orientation i.e. Narver & Slater 1990, Kohli & Jaworski 1990 (whereby proponents focus on the actions of an organisation). They observe that the choice between these alternative perspectives has important implications for research design (conceptualisation, measurement) as well as implementing organisational change interventions.

[10] Hooley *et al.* (2000) observes, *"The Narver & Slater (1990) scale, in particular, is both conceptually and opeationally appealing because it encapsulates the main aspects of the Kohli & Jaworski intelligence gathering, dissemination, and responsivess constructs while at the same time assessing cultural factors (c.f. Deshpande, Farley, & Wester, 1997; Hunt & Morgan, 1995)"* (p.274)

Hart & Diamantopoulos, 1993; Cadogan & Diamantopoulos, 1995) and more turbulent environments (e.g. Gray, Matear & Matheson, 1998a; Hooley, *et al.*, 2000; Sin *et al.*, 2000). However, the majority of work in this field has focused on the link between market orientation and company performance. Substantial evidence exists to support this theorised link. Strategic business units in the US (Narver & Slater, 1990; Schlegelmilch & Ram, 2000), UK (Greenley, 1995a; Pitt, Cruana & Berthon, 1996), Japan (Deshpande *et al.*, 1993), and mainland China (Sin *et al.*, 2000; Shohman & Rose, 2001) have reported a direct link between their levels of market orientation and business performance. A second stream of literature has grown up around factors affecting market orientation and the market orientation-business performance link. Kohli & Jaworski, (1990) saw this link as being influenced by four moderators i.e. market turbulence, technological turbulence, competitive intensity and economy performance. This suggests the possible impact of national economy and culture on market orientation. However, their subsequent work found the market orientation-business performance link existed irrespective of these variables (Jaworski, & Kohli 1993). Slater & Narver (1994) identified eight moderators in their investigation into the effects of the competitive environment on the market orientation-business performance relationship. They find only limited evidence of the effect, but as they observe, the benefits of market orientation are long-term and environmental conditions are often transient, therefore, being market orientated is cost-effective in spite of any possible short-term moderating effect of the environment.

Dobscha *et al.* (1994) argue that external factors may have an effect on market orientation itself rather than simply acting as moderators on the market orientation-business performance link. Indeed, Schlegelmilch & Ram (2000), conceptualising market orientation from a strategic perspective, investigate the relationship between market orientation and what they label, *'pertinent organisational and environmental variables'*[11] as well as business performance. Based on a survey of nearly 400 companies operating in the US, significant relationships emerged between their market orientation construct and all three organisational variables. But perhaps most relevant to this study were their findings regarding the environmental variables.

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[11] Organisational variables include strategic priorities, inter-departmental co-ordination and ownership nationality. Environmental variables include intensity of competition, customer expectations and rate of technological change.

Intensity of competition and rate of technological change were both found to have a significant, positive impact on strategic market orientated behaviour. To the best of the researchers knowledge, this is the only recent study that depicts the effect of today's technology driven and rapidly changing business environment on market orientation. Schlegelmilch & Ram (2000) suggest that firms are using strategic market orientation as a *'coping mechanism'* when faced with highly volatile technological environments. Thus strategic market orientation is recognised as a valuable management tool.

Kohli & Jaworski (1990) model senior management dynamics, interdepartmental dynamics and organisational systems as antecedents of market orientation. They note that a set of barriers to market orientation suggested in the literature refer to the structural form a firm adopts. Further, as Siguaw, Simpson & Baker (1998) note, a supplier, positioned upstream of the supply chain and a distributor, positioned downstream of the supply chain each have their own defined set of market orientation behaviours. Greenley (1995b) also recognised different types of market orientation through his examinations of the variation in the dimensions and features of market orientation exhibited by companies. He identified five distinct forms of market-orientated behaviour but observed that the market environments with which these forms were associated were not significantly different (*c.f.* Matsuno & Mentzer, 2000; Grewal & Tansuhaj, 2001). This observation raises an important question. If, to the contrary of what previous marketing literature implies, market orientation does not contribute to control or manipulation of, for example, customers and competitors, then in what way does it create the widely reported benefits in behaviour? Does market orientation interact with something else? Could the relationship between organisational form and market orientation that Kohli & Jaworski (1990) suggest be a two-way relationship? One key aspect of structural form is supply chain configuration. To date no evidence exists to support the relationship briefly hinted at in the literature between supply chain configuration and market orientation.

2.1.2 Transaction Cost Theory

Coarse (1937) suggested that vertical integration should be determined through *relative cost*. If the transaction costs associated with the markets[12] are greater than the administrative costs of organisations within the firm, we can expect the co-ordination of productive activity to be internalised within the firm.

Faced with a more turbulent business environment and more intense competition, large industrial companies have reduced both their product and vertical scope. They have divested peripheral business in order to focus upon their '*core*' business and vertically '*de-integrated*' by increasingly outsourcing their requirements for components and business services. The implications seem to be that during periods of instability and intense competition, the costs of administrative planning tend to increase relative to the transaction costs of markets. Oliver Williamson's (1975, 1985) contribution to economics has been his analysis of the nature and sources of transaction costs of markets, which form the basis for a theory of economic organisation. His analysis offers insights into corporate strategy decisions concerning the scope of the firm and the design of relationships between firms.

Transaction cost theory begins from the premise that even though supply chain configurations differ, some degree of vertical integration should be expected in all firms (Davis, 1987). Finished goods and services are usually the result of a production process that involves a number of stages (see Figure 1.1, p.2.). These stages can be identified as a series of independent technological divisions. In this context vertical integration is defined as the '*ownership*'[13] of two or more of these divisions, assuming operative control under a single administrative hierarchy (*c.f.* Koch, 1980). Therefore, in order to understand why such distinctly separate technological processes should be linked under a single organisational structure, a more general question arises. Why does the firm exist at all? Why is some degree of

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[12] Coase (1937) assumes two forms of economic organisation; 1) the market mechanism, where individuals and firms make independent decisions that are guided and co-ordinated by market prices and 2) the administrative mechanism, where a firm's decisions over production, supply and the purchases of inputs are made by managers and imposed through hierarchies.

[13] Ownership is defined in terms of the financial ownership of the firm.

ownership preferable to market transactions (and thus inter-firm relationships)? To address this question we turn to theories of the firm.

Theories of the firm have a long and distinguished history. Adam Smith (1796) and Alfred Marshall (1890) believed that competitive economic systems work automatically. Through the price mechanism, resource allocation follows an efficient path towards a long-run equilibrium. Therefore, allocative efficiency can only be reached when equilibrium prices are set in the market place through open bidding amongst suppliers and customers. These assumptions, though useful for explaining profit maximisation objectives, do not offer insight into the size or number of firms found in a particular economy. Further, if this rationale were closely followed, markets would always be better optimising alternatives than pursuing the ownership approach. As Marris & Mueller (1980) observe, classical microeconomic theory does not offer a full explanation of why firms develop and grow.

For explanations of the existence of the firm and the form it adopts we must return to Coase (1937) and Williamson (1975)[14] and transaction cost theory. However, one final point should be raised before we examine transaction cost theory in more detail. The form a firm adopts is not a dichotomous choice between ownership and market transaction. Rather an array of alternatives between these extremes must be recognised.[15] Blois (1972) calls these combinations of alternatives quasi-integration.

Transaction cost theory is based on the efficiency argument. If markets fail to provide efficient solutions there must be costs associated with the price mechanism -- what Williamson labels *'transaction cost'*. According to Coase (1937) and Williamson (1971, 1975) transaction costs tend to be minimised through organisational hierarchies. In other words they advocate ownership of supply chain stages.

It was Coase, whose seminal paper *"The Nature of the Firm"* started this whole new economic concept and a new line of research, which ultimately evolved into a theory of market failure. Coase (1937) illustrates his perspective,

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[14] Also see Arrow (1975) and Chandler (1977).
[15] Inter-firm transactional relationships, influence within inter-firm relationships, part-ownership through joint ventures, alliances and franchise agreements.

> *"...if a workman moved from department Y to department X he does it not because of a change in relative prices, but because he is ordered to do so."* (p.386)[16]

The underlying rationale in this observation is that two co-ordinating mechanisms affect the production process: prices and entrepreneurship. The difficulty arises in deciding when one approach should take preference over the other. Transaction cost theory holds that markets are a sub-optimal solution when the price mechanism exhibits high costs. Therefore, optimisation is only reached when those costs are minimised by ownership, i.e. by having entrepreneurship rather than a pricing system as the co-ordinating factor. In consequence firms would grow until the marginal cost of owning the next process (or supply chain stage) equals that of the market.

Whilst Coase failed to specify when and why transaction costs might be high, he did identify three key costs that might drive market failure: 1) costs related to finding the relevant prices, 2) costs related to writing, negotiating and enforcing long-term contracts, 3) costs surrounding future events creates uncertainty and drives a need for market information. Now we see how external factors, such as high enforcement costs, might be a significant deterrent to inter-firm relationships when, for example, a firm has limited resources to pursue an action through the judicial system or constantly gather and analyse market information.[17] Large amounts of time and resource would have to be spent on resolving these difficulties. This could explain why, in such situations, companies tend to put such a high value on trust and commitment with other supply chain members (see Section 2.1.1).

Williamson criticises Coase's article as tautological due to its failure to operationalise his approach and develops a theoretical framework with the objective of filling this gap. Whether Williamson has, or has not been successful in operationalising transaction costs is still a matter of controversy, but it is fair to say that his theoretical contribution has given much more weight to the transaction cost approach.

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[16] Also cited by Williamson (1985, p.3)
[17] For a discussion on the severity of contract enforcement response in channel relationships see Antia & Frazier (2001)

Williamson takes Coase's argument further by developing a theory that considers the circumstances under which transaction costs have a propensity to be high and hierarchies more likely to develop. Without pretending to summarise Williamson's extensive writings, we present some of the most salient points below.

Williamson purports two inherent characteristics of human behaviour to be incorporated into this analysis of transactions; bounded rationality and opportunism. Bounded rationality appears when the cost of reaching an optimal decision are high given the fact that human beings are only capable of processing limited information. Williamson defines opportunism as;

> *"...[the] lack of candour or honesty in transactions to include self interest seeking with guile"* (Williamson, 1975)

It is argued that opportunistic behaviour may not always be present, as it is dependent upon the *'attitudes'* of supply chain members and on their perspective on *'bureaucratic structure'*. According to John (1984) perceptions of coercive power[18] between supply chain members leads to less favourable attitudes and a higher degree of opportunism. Alternatively non-contingent power led to a more *'favourable attitudinal orientation'* and less opportunism (*c.f.* Brown, Dev & Lee, 2000; Wathne & Heide, 2000; Hibbard, Kumar & Stern, 2001).

Two further conditions identified by Williamson (1975) as the likely cause of high transaction costs are *uncertainty*[19] and *asset specificity*. When transactions require specific assets (human or capital) with little or no alternative the supply chain stage is said to involve high asset specificity. For example, Glaxo SmithKlien manufacture drugs that require secure temperature-controlled conditions for storage. They therefore have a high asset specificity for this part of their business.

In general, vertical integration is more likely to occur when there is a high degree of uncertainty, high specific assets are required and a high frequency of transaction. A high degree of market uncertainly has been defined as a situation in which it is costly

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[18] For a more detailed discussion on channel power see Section 4.3, p.105
[19] For a discussion on market uncertainty see Achrol, Reve & Stern (1983)

or impossible to describe the company decision tree. Blair & Kaserman (1983) examine the case for forward integration and define uncertainty in terms of future prices for input and output products, the quality of products and the availability price/quality combinations of products.

Market uncertainty increases transaction costs. The greater the uncertainty, the greater the contractual protection required by the supply chain members involved in the transaction. This in turn increases the costs of not only negotiating but also enforcing contracts and thus reaffirms the case for vertical integration. Buvik & John's (2000) work examines these aspects of transaction cost theory in vertically de-integrated firms. They analyse vertical co-ordination as a response to external uncertainty and show that its effectiveness is highly contingent on the magnitude of the problem. Their findings show that when specific investments are modest, greater vertical co-ordination diminishes transaction difficulties when firms adapt to high environmental uncertainty. Conversely, vertical co-ordination increases transaction difficulties when firms adapt to high environmental uncertainty and specific assets are substantial.

One of the strongest criticisms that transaction cost economics has faced is the difficulty in measuring and testing transaction costs. The treatment of uncertainty in the literature is an excellent illustration of this shortcoming. Researchers have faced problems operationalising uncertainty and conflicting results have been reported dependent on the definition applied to uncertainty. For example, Dwyer & Welsh (1985) in the US based study, found that across ten industries *'variability'* (the variance of existing demand i.e. availability of resources and intensity of competition) fosters vertical integration to retailers. On the other hand, in the same sample, *'heterogeneity'* (the extent to which the environmental entities facing the channel are dissimilar to one another) had no significant impact on integration.

Klein & Roth (1988) also reported conflicting results under different types of uncertainty facing multinationals establishing distribution channels in host countries:

> *" An unbundling of uncertainty-construct is essential for an understanding of the opposing desires for flexibility and efficiency. As was shown, the different*

> *components of uncertainty have conflicting implications for optimal structure, and thus must be distinguished. Environmental volatility, reflecting transaction cost incentives, has a positive effect on forward integration, while environmental diversity reflecting the need for flexibility and adaptation, has a negative effect on forward integration."* (Klein & Roth, 1988, p.28)

Variability, heterogeneity, volatility and diversity are all different ways of defining uncertainty. Measuring and comparing them is a challenge.

Transaction cost theory sets out to predict which supply chain configuration firms are most likely to adopt, and in what circumstances, by considering the efficiencies that can be created through ownership of supply chain stages or making use of the market. Whilst acknowledging that inter-firm relationships can be appropriate in certain circumstances, transaction cost theory does not distinguish between the different types of inter-firms relationships that may exist.

Asset specificity is also credited with driving ownership of supply chain stages. As previously noted, asset specificity is concerned with the level of human and capital assets. When a transaction is made with items that are not specialised there is no danger for the user since alternative sources of supply are easily found and switching costs are invariably low. Similarly, when the assets are not specific to the transaction, the supplier perceives little danger since now the pool of potential customers is sufficient to reduce the investment risk should the original agreement fail. However, when specific assets are required for a transaction and the alternative use of human and capital assets are limited, the failure of the transaction due to opportunistic behaviour bears important cost implications for at least one if not both of the parties involved. This circumstance, in conjunction with a high frequency of such a transaction would, according to transaction cost theory, be an incentive to reach transactional efficiency through ownership and thus vertical integration.

For example, *ceteris paribus*, hi-tech products requiring specialist sales personnel (human asset specificity) would tend to be distributed through wholly owned channels. The same would apply to highly perishable goods perhaps requiring refrigerated transport (capital specificity). Anderson (1985) found support for the

human asset specificity element in a study of thirteen US electronic component manufacturers. Highly controlled, direct sales-forces were more frequently found where product lines were considered *'hard-to-learn'*. Further, through their research into multinationals, Anderson & Coughlans (1987) found that firms preferred the ownership approach to their supply chain when product distribution required highly trained personnel.

The concept of opportunistic behaviour has been used in different theoretical research to explain the organisation of economic activity (Williamson, 1975; Teece 1976; Wathne & Heide, 2000). To demonstrate how opportunism is exacerbated by asset specificity has also been the objective of important empirical research (Anderson, 1985; Anderson & Coughlan, 1987). Nevertheless, the concept is sometimes difficult to distinguish from the rational behaviour of self-interest seeking individuals, which is the basis of economic theory. Klein, Crawford & Alchian (1978) define opportunistic behaviour in a way that enables us to better understand this distinction. According to them, as assets become more specific, more appropriate quasi-rents are created. This gives rise to the reinterpretation of contracts in one's favour. Hence the costs of contracting will increase and may exceed the cost of ownership. Thus, *ceteris paribus*, we are more likely to see vertical integration in these circumstances. According to them, vertical integration should be examined as a means of *'economising on the costs of avoiding risks of appropriation of quasi-rents, in specialised assets'* by opportunistic individuals.

Until now we have discussed the variables which transaction cost economics identifies as the drivers of vertical integration through ownership. The elements, which impose limits for a firm's expansion, will now be examined.

According to Williamson, one of the key limiting factors to a firm's growth is *governance*; bureaucratic costs that represent all the costs related to firm size i.e. distortion in communication, a finite span of control etc.[20] Further, *'making'* internally what could be bought might mean sacrifices in economies of scope and scale. The limits to growth are mainly placed on governance cost disabilities of internal

[20] For examples of empirical research into the effects of governance mechanisms within supply chains see Stump & Heide (1996) and Brown, Dev & Lee (2000)

organisations where asset specificity is not substantial and when moves towards integration bring high losses in economies of scale and scope (Williamson, 1985; Heide, 1994).[21]

In more recent works Williamson further emphasises the importance of asset specificity, considering it the principal factor driving vertical integration. He comments,

> *"Without it* [asset specificity], *market contracting between successive production stages ordinarily has good economising properties. Not only can production economies be realised by outside suppliers who aggregate orders, but also the governance costs of market procurement are negligible since neither party has a transaction-specific interest in the continuity of the trade. As asset specificity increases, however, the balance shifts in favour of internal organisation."* (Williamson, 1985, p.90)

As asset specificity increases, vertical integration becomes a more efficient solution, but governance costs and losses in economies of scale and scope have to be evaluated. Thus, according to Williamson's model;

- Markets are more efficient than hierarchies in the presence of low asset specificity, while hierarchies are more efficient when asset specificity is high
- Economies of scope and scale favour the market over a wider range of asset specificity values.

When referring to vertical integration in distribution channels, Williamson introduces the concept of externality.[22] He suggests that this, along with asset specificity, also drives vertical integration. He explains,

> *"Externality concerns arise in conjunction with a branded good or service that is subject to quality debasement. Whereas a manufacturer can inspect*

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[21] to benefit from the economies generated by aggregating demands is one of the advantages of markets over hierarchical organisations.

and thereby better control the quality of components and materials it purchases from earlier stage and lateral suppliers, it is less easy to exercise continuing quality controls over items sold to distributors" (Williamson, 1985, p.112)

According to this argument, negative externalities arise when the manufacturer cannot extend quality controls over distribution and, therefore, *'internalising the externality'* will require the hierarchical control of distribution functions. To summarise, three elements are thought to drive vertical integration;

- High asset specificity in distribution functions.
- High externalities
- Low losses in economies of scope and scale

Williamson's approach has been criticised for emphasising the markets and hierarchies dilemma in which markets and firms are alternative instruments for completing transactions, without offering a satisfactory explanation for the existence of other types of inter-firm relationships (Brown, 1984; Webster 1992).

As we have seen, one of the most significant shortcomings of this theory is the fact that although it goes much further than Coase in identifying the circumstances in which transaction costs are likely to be high, it fails to determine how transaction costs can be measured and tested. The problem lies in the definition of key concepts within the theory, e.g. *'uncertainty'* and *'asset specificity'*. Williamson's theory seems to be a useful explanatory tool but is weak at predicting the phenomena it endeavours to explain.[23] Whilst it is fair to say that transaction cost economics is a powerful paradigm that explains the circumstances in which hierarchical organisations are preferred over markets (and vice-versa), we should not expect the theory to determine the mix of transaction cost and governance costs in order to drive a specific firm towards vertical integration.

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[22] Externalities arise within a transaction when costs are not paid (negative externalities) or when no charge is made for resultant benefits (positive externalities).
[23] For a more detailed discussion on realism see Chapter 5, Section 5.2.4.

2.1.3 Vertical Integration Theory

Vertical integration theory has its genesis in the economics literature. They define the vertical integration of the firm as the financial ownership of multiple supply chain stages. Avoidance of contractual or market exchanges and the substitution of internal transfers within the boundaries of the firm is central to the concept of vertical financial ownership. Vertical integration is bi-directional and thus may occur when a firm expands *backwards* towards its sources of supply or *forwards*[24] towards its markets. Economists and strategic management researchers recognise that there are many possible motives for vertical integration (*c.f.* Perry, 1989). Three primary reasons are cited in the literature:

- Economies of scale
- Market domination
- Security of supply

Despite having its background in economics both the industrial organisation and strategy literatures have addressed this area. However, there has been no '*systematic synthesis*' of the literature from these two key fields driving the vertical integration discourse (Bettis, Bradley & Hamel, 1992). This is perhaps not surprising when we examine the environmental changes emphasised in the literature and consider the impact this has had on the appropriateness of vertical integration strategies for organisations in the twenty-first century.

In the 1950's and 1960's firms sought security of supply and economies of scale through vertical integration, taking financial ownership of large sections of the supply chain (Chandler 1969). The larger the firm, the more activities it could undertake by itself and the fewer it needed to obtain via outsourcing. The logic of economies of scale equated efficiency with size. Webster (1992) cites the Ford Motor Company as the *'epitome of the fully integrated firm.'* Their River Rouge plant produced a single, standardised product, the Model A. Webster explains,

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[24] also referred to in the literature as *upstream* and *downstream.*

> *"Ford-owned lake steamships docked at one end of the plant with coal and iron ore (from Ford's own mines) and complete automobiles and tractors came out at the other end. Molten iron, from the blast furnaces was carried by ladles directly to moulds for parts, bypassing the costly pig iron step. Waste gases from the blast furnaces became fuel for the power plant boilers, as did the sawdust and shavings from the body plant. Gases from the coking ovens provided heat for heat-treatment and paint ovens (Ford, 1922, p.151-153). Elsewhere, Ford owned sheep farms for producing wool, a rubber plantation in Brazil, and its own railroad to connect its facilities in the Detroit region (Womack, Jones & Roos, 1991, p.39). Integration required large size. Large size begat low cost."* (p.3)

Such large, hierarchical, corporate structures were highly integrated and forged the dominant organisational form during this period. Webster continues,

> *"When the world was changing more slowly than it is today, such caution was wise in terms of preserving valuable assets that had been committed to clearly defined tasks, especially when those assets were huge production facilities designed for maximum economies of scale in the manufacture of highly standardised products."* (p.4)

The business environment of the twenty-first century is different from that of the 1960's. Global competition has resulted in better product performance at lower cost to customers. Customers have more choice and standardisation is consequently limited (*c.f.* Zipkin, 2001; Liechty, Ramaswamy & Cohen, 2001). There have been rapid advances in telecommunications, transportation and information processing (*c.f.* John, Cannon & Pouder, 2001). There have been technological improvements in products and manufacturing processes (*c.f.* Kotha & Swamidass, 2000; Das & Narasimhan, 2001). These changes have meant that the appropriateness of vertical integration strategies has been brought into question.

Full vertical integration is no-longer thought to be a cost-effective method of controlling the supply chain. As Harrigan (1985a) notes, mobility and exit barriers may increase strategic inflexibility that trap firms into keeping obsolescent

technologies and strategies. Further, the complex control and co-ordination problems associated with the management of highly vertically integrated supply chains, creates interdependent activities that often result in management inefficiencies (D'Aveni & Ilinitch, 1992). Costs are bolstered by over capacity of plant at some stages within the supply chain. Harrigan (1983) points out that such disparities of throughput at the different supply chain stages may be unavoidable as technological factors force firms to build plants of differing scales at adjacent stages of production. Finally, vertical integration may force firms to miss out on the opportunities of low, open market prices (Quinn, Doorley & Paquette, 1990). Indeed, there are a number of empirical studies that provide support for the claim that highly vertically integrated firms are associated with poor business performance (*c.f.* Rumelt, 1982; Harrigan, 1985; D'Aveni & Ilinitch, 1992).

Whilst Harrigan (1985a), in conjunction with other economists, recognises only the ownership perspective of vertical integration, she develops the concept of vertical integration in an attempt to address the complex nature of the firm, identifying five dimensions.[25] This approach attempts to understand the different forms that a vertically integrated firm might take. Her contemplations draw on the concepts of '*quasi-integration*' (Blois, 1972) whereby firms try to marry the advantages of vertical integration with the advantages of outsourcing (Quinn, Doorley & Paquette, 1990), sometimes forming networks (Miles & Snow, 1986; Sawhney & Parikh, 2001) or alliances (Ohmae, 1989; Dyer, Kale & Singh, 2001). However, in line with the economics literature, Harrigan goes no further with the supply chain configuration concept than its interpretation as a vertical financial ownership system.

It is not until 1992 that the contemplation of a supply chain configuration as a combination of vertical integration through either inter-firm relationships or financial ownership is considered isomorphic (Mahoney, 1992). At this point the environmental conditions are considered such that vertical financial ownership cannot and should not be ruled out but that integration through contractual exchange can be equally successful *dependent on circumstance* (*c.f.* Frohlich & Westbrook, 2001).

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[25] See Chapter 4, Section 4.1 for further discussion on Harrigan's interpretation of supply chain configuration.

The literature suggests that incentives for firms to integrate through financial ownership are dependent on six key factors (D'Aveni & Ravenscraft, 1994):

- the type of production involved,
- the extent of transaction costs,
- the amount of specialised assets,
- the degree of market power at each stage of production,
- the separability of activities, and
- the amount of uncertainty concerning prices and costs

Vertical integration is still considered to be a strategy for cost reduction. For example costs may be decreased:

- By avoiding market costs (Jones & Hill, 1988)
- By eliminating the distortion in input costs caused by imperfect competition in upstream markets (Westfield, 1981)
- By reducing transaction costs (Jones & Hill, 1988, Mahoney, 1992)
- By decreasing uncertainty or asymmetric information resulting in a more efficient use of inputs (Riordan & Sappington, 1987), and
- By protection proprietary technology (Jones & Hill, 1988)

As D'Aveni & Ravenscraft (1994) go on to observe, the theoretical literature also suggests that vertical integration can increase profits through higher prices. This is because vertical integration creates barriers to entry (Salop & Scherffman, 1983), allows price discrimination (Perry, 1980), reduces service and advertising externalities (Perry & Groff, 1985; Jones & Hill, 1988) and provides a firm with power over buyers or suppliers (Porter, 1980; Munson, Rosenblatt & Rosenblatt, 1999).

In his discussion of the isomorphic nature of vertical financial ownership and vertical contraction, Mahoney (1992) draws the reader's attention to a critically important observation of the vertical integration literature. He comments,

> *"Most of the published theoretical articles considered... claim to be providing explanations for vertical financial ownership. It is important to realise, however, that this assertion is often misleading. While motives provide explanations for vertical integration strategy they do not provide insight on the choice of organisational form (governance structure).* ***In short, when we abstract from transaction costs, knowing the motive for vertical integration cannot help us in predicting or prescribing organisational form. Conversely, knowing the organisational form cannot help us to infer motive***[26] *(Philips & Mahoney, 1985). Hence, many economic papers that claim to provide theories of vertical mergers actually provide theories of vertical integration strategies. The choice of governance structure to implement the vertical integration strategy remains unspecified."* (p.564)

Mahoney (1992) stresses his belief that a supply chain configuration is not *either* an economic structure *or* choice of governance typology. Rather it is a combination of the two and it is only when these two approaches are considered in tandem that the supply chain configuration of a firm might be predicted or perhaps more importantly, prescribed.

As Blair & Kaerman (1983) point out, it may be possible to replicate the outcome of a vertical financial ownership strategy with a simple contract. Mahoney (1992) equates this with the *'Coase theorem'* whereby in the absence of transaction costs, the assignment of property rights does not matter from an efficiency perspective (Coase, 1960). Mahoney's key argument presumes that the various motives provided for vertical financial ownership (derived from the strategy and economics literature), can be directly generalised to become arguments for vertical integration through other means and applied *inter alia* to long-term contracts (Crocker & Masten, 1988) and equity joint ventures. Mahoney, like Webster (1992), recognises that methods of integration form part of a continuum. The integration continuum progressively requires increasingly more involvement by a firm as they move along the scale from pure transaction in the open market, though long-term relationships and alliances until

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[26] This section appears in bold in the original article, as it does here in order to underwrite the original emphasis intended by the author.

ultimately vertical financial ownership, which represents the highest level of involvement.[27]

Mahoney's proposed (and not yet empirically tested) framework is an important contribution to our understanding of supply chain configuration. However, whilst it sets out to provide some synthesis within the field of vertical integration, it looks at the supply chain purely from an efficiency perspective. The social context of integration also impacts on supply chain configuration, (Pfeffer & Salancik, 1978). Recent empirical research suggests that in the case of the adoption of multidivisional structure both efficiency and power politics matter (Palmer, Friedland, Jenning & Powers, 1987). This has implications for the supply chain in a marketing context where a firm has to position itself in an efficient manner that best serves its target markets whilst managing its buyer/seller power through inter-firm relationships. This suggests the need for an effectiveness perspective.

The effectiveness perspective is one of the most recent developments in the vertical integration literature. With its focus on the customer, demand management dominates this approach. The concept of the demand chain, introduced by Langabeer & Rose (2001), perhaps constitutes one of the most significant contributions to our understanding of supply chain configuration since the development of transaction cost theory. Langabeer & Rose (2001) believe that the supply chain should be primarily organised around the customer (*c.f.* Cairncross, 2002) enabling demand forecasting, demand planning and product and customer management. This demand focus in no way distracts from the significance of the efficiency argument. Langabeer & Rose (2001) recognise the value of efficiency practices such as streamlining manufacturing and distribution processes, improving communications between partners and identifying potential cost reduction opportunities within the chain. But, they argue, without the effectiveness perspective firms will miss out on opportunities to achieve sustainable competitive advantage. This perspective brings to the vertical integration, external environmental considerations previously associated with the strategic view.

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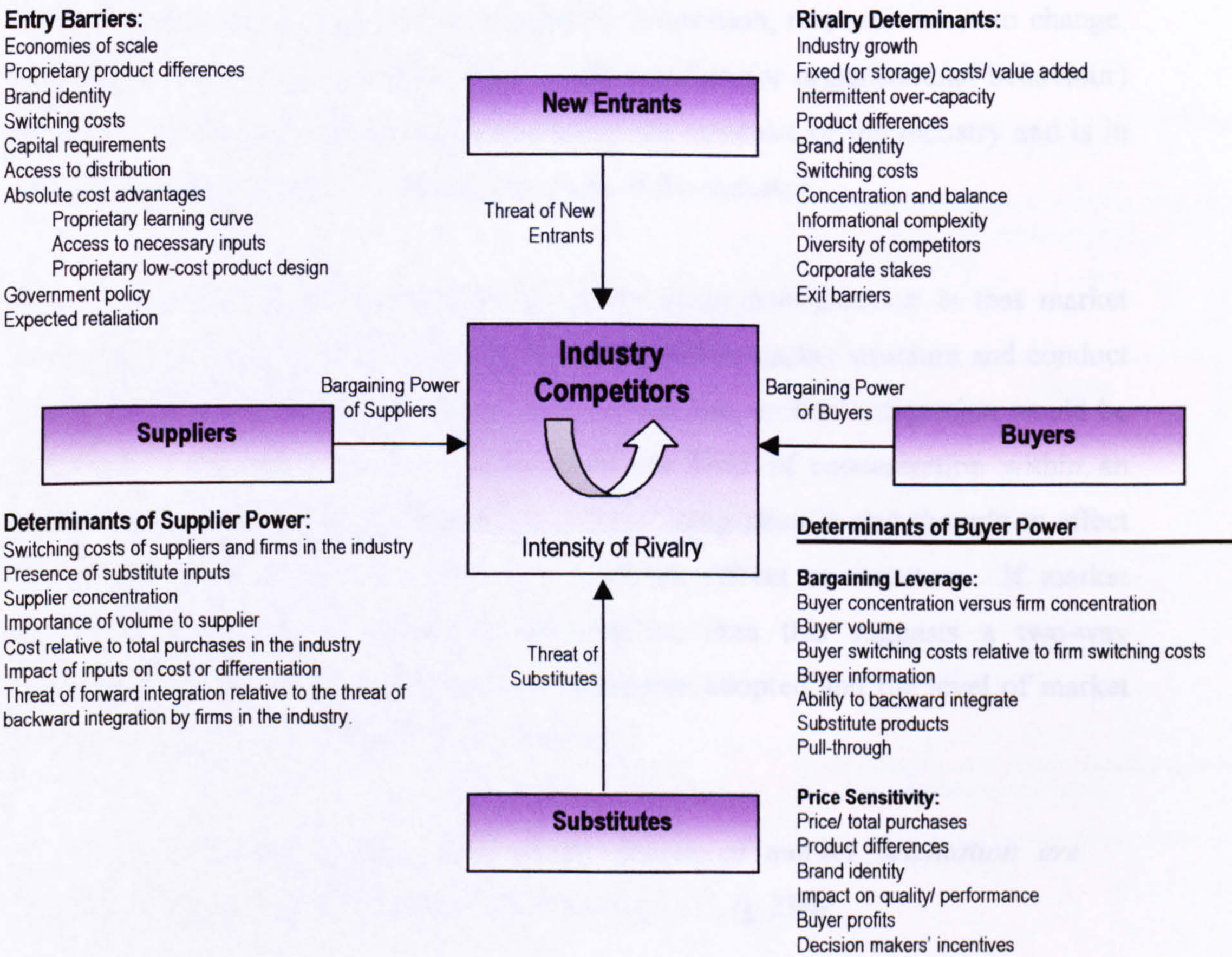
[27] See Chapter 4, Section 4.1

2.1.4 The Strategic View

To understand supply chain configurations and their relationship with market orientation we need to understand the role strategy plays in their formation. For most strategic decisions the core of the firm's external environment is its *industry*, (which is defined by the firm's relationships with customers, competitors and suppliers). Porter (1985) summarises the elements of industry structure identifying external threats and opportunities facing a firm (see Figure 2.1).

Figure 2.1 The Five Competitive Forces: Elements of Industry Structure



Source: Porter (1985) "Competitive Advantage; Creating and Sustaining Superior Performance", The Free Press, p.6.

These industry factors have important implications for the supply chain configuration adopted by a firm. This perspective has resulted in the '*structure-conduct-performance*' paradigm (s-c-p) and offers a strategic explanation for supply chain configurations.

According to the *structure-conduct-performance* view, industry structure is the key to being able to predict the *performance* of industry. Performance is typically measured through output, growth, profitability and technological advancement. As can be seen from Figure 2.1, vertical integration is a component of *structure* and is considered in conjunction with the degree of concentration (number and size of suppliers), barriers to entry, economies of scale and government participation. The *conduct* of firms is concerned with pricing and product strategies, innovation, responsiveness to change, advertising and attitudes towards rivals. The conduct (or organisational behaviour) of firms is thought to be heavily influenced by the structure of the industry and is in turn responsible for the performance outcomes of the industry.

The catalyst behind this perspective of supply chain configuration is that market structure determines market performance. Much of the market structure and conduct is analysed on the basis of barriers to entry. Therefore, vertical integration would be considered a barrier to entry, as it increases the level of concentration within an industry thus making it more profitable. Vertical integration is also thought to affect the conduct of firms in ways that have feedback effects on structure. If market orientation behaviour is interpreted as conduct, then this suggests a two-way relationship between the supply chain configuration adopted and the level of market orientation achieved. Ruekert (1992) observes,

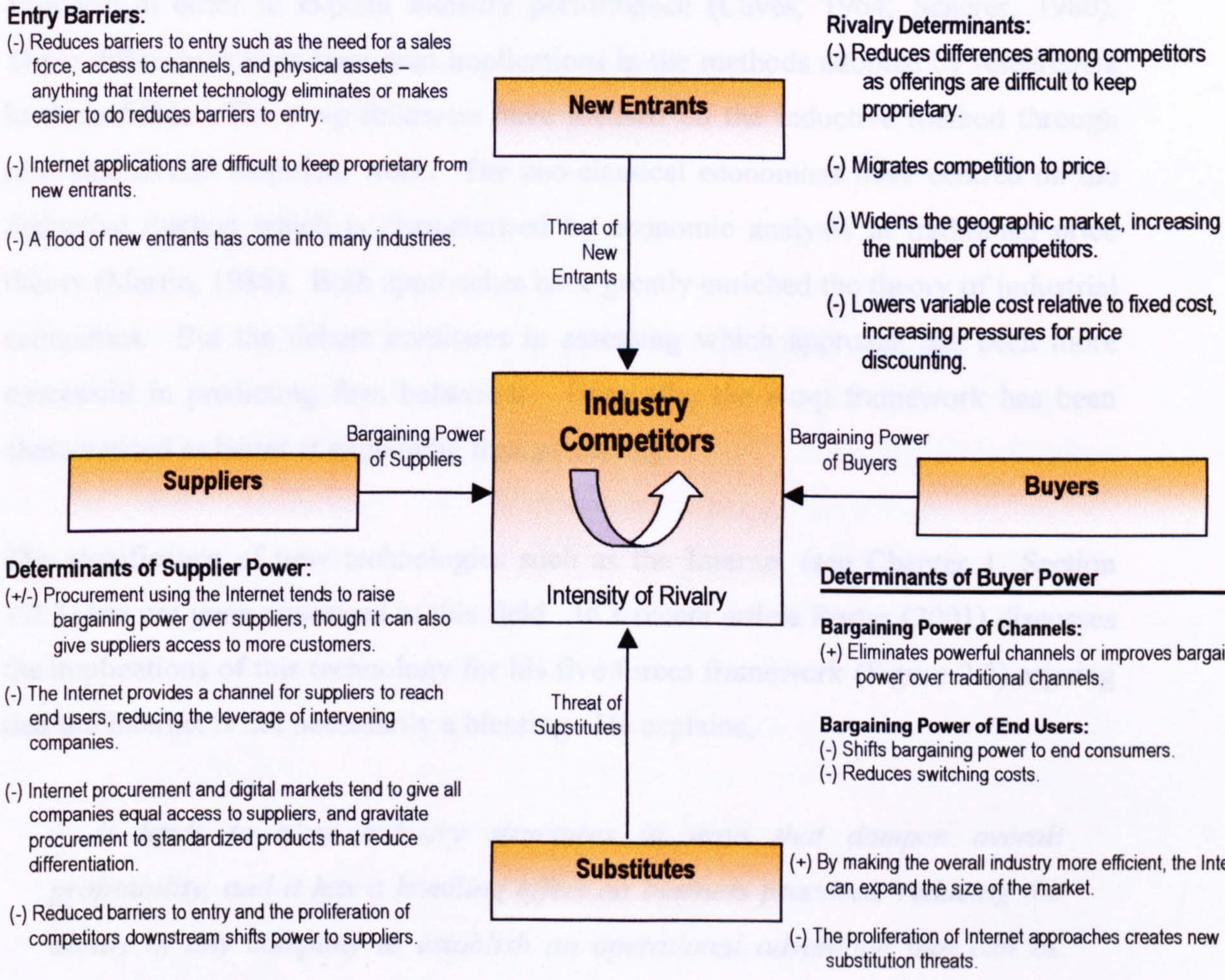
> *"...organisational actions such as the degree of market orientation are inextricably linked to organisational structures..."* (p.230)

Competition policy has drawn heavily upon the s-c-p framework for anti-monopoly recommendations. In the 1990's the UK brewing industry was shaken by the Monopolies & Merger Commission (MMC)[28] as they sought to prevent monopolistic

[28] The Monopolies & Mergers Commission (established in 1948) was replaced by the Competition Commission which came into effect on 1st April 1999.

profits through forcing de-integration. Similarly, in 1997 the MMC were called upon to investigate Birds Eye Walls Ltd. concerning anti-competitive practices regarding their wrapped ice cream products. Birds Eye stood accused of constraining retailers to single source agreements by providing them with freezers that they were not allowed to store anything other than Birds Eye products in. To-date the *"ice cream war"* as it has become known, continues unresolved.

Figure 2.2 How the Internet Influences Industry Structure



Source: Adapted from Porter (2001) "Strategy and the Internet", Harvard Business Review, March, p.67

Neo-classical economists have argued, in response to those arguments that in the long run all barriers to entry are transitory. The only lasting barriers are those imposed by a higher authority, i.e. the government. In their view, government regulation is the primary source of market power. Any strategic move made by one firm can sooner or later be made by another. In the long run, equilibrium is characterised by perfect competition.

The s-c-p paradigm represents a departure from theories that accept perfect competition, instead adopting the perspective of imperfect competition and market structure in order to explain industry performance (Caves, 1964; Scherer, 1980). These differences have important implications in the methods adopted by researchers in these fields. The s-c-p followers have focused on the inductive method through case studies and empirical work. The neo-classical economists have centred on the deductive method which is characterised by economic analysis in traditional price theory (Martin, 1986). Both approaches have greatly enriched the theory of industrial economics. But the debate continues in assessing which approach has been more successful in predicting firm behaviour. Generally, the s-c-p framework has been characterised as better at explaining than predicting.

The significance of new technologies such as the Internet (see Chapter 1, Section 1.2.3) has not gone unnoticed in this field. In a recent article Porter (2001) discusses the implications of this technology for his five forces framework (Figure 2.2) arguing that the Internet is not necessarily a blessing. He explains,

> *"...it tends to alter industry structures in ways that dampen overall profitability, and it has a levelling effect on business practices, reducing the ability of any company to establish an operational advantage that can be sustainable."* (p.64)

This suggests a weakness in the efficiency argument. Indeed Nickerson, Hamilton & Wada (2001) make a bold attempt at linking Porter's framework with transaction cost theory through their examination of the international courier services in Japan. Their study suffers from a number of limitations; nevertheless this is a first attempt at

theoretically and empirically linking these frameworks. The need to do so highlights the limitations of both approaches.

Despite s-c-p's clear contribution to the field, this framework has not escaped criticism. The strategic view stands accused of short-termism, being a static approach that provided a useful '*snapshot*' of the forces at work at a single point in time. This limits its ability to predict the evolution of a structure or suggest how future conduct might influence it (Sawyer, 1985). It also fails to give an overall theory of industry activity. It becomes industry specific and as such is only useful as a framework to analyse what is happening in a specific industry at a specific time. This point has raised further criticism as it ignores a firm's internal organisation and its impact on business performance (Williamson, 1975, p.8).

2.1.5 The Resource-based View

Since the late 1980's, there has been a surge of interest in the role of firm resources and capabilities as the principal basis for strategy and the primary determinants of firm profitability. This resource-based view has been described as the firm's focus on the interface between strategy and the internal resources and capabilities of the firm, (Barney, 1991) and has been contrasted with the strategic view which has concentrated on the industry environment of the firm and its competitive position in relation to rivals (see Section 2.1.4). Before these recent developments Itami (1987) observed,

> *"...Analysts have tended to define assets too narrowly, identifying only those that can be measured, such as plant and equipment. Yet the intangible assets, such as a particular technology, accumulated consumer information, brand name, reputation, and corporate culture, are invaluable to the firm's competitive edge that can be sustained over time."* (p.125)

It is perhaps this emphasis on rapidly changing technologies in today's turbulent and global business environment that has brought this focus sharply into view. Quinn (1992) comments,

"[T]he widespread penetration of service technologies has virtually destroyed the boundaries of all industries... Airlines no longer compete just against airlines. They also compete against travel agents, tour groups, retailers (for products sold from in-flight catalogues), financial service companies (credit cards, group transportation providers (rental cars or buses), communications companies (network and database services), and so on.... As a result managers can no longer define their corporation as being in a single 'industry'. Technology demands that they reconceptualize the 'industries with which they compete' to include all functional and potential cross-competitors for the services and products they create." (p.22-23)

Grant (1995) recognises that in a world where customer preferences are volatile, where the identity of customers and the technologies for serving them are changing, an externally focused orientation does not provide the constancy of direction to act as a secure foundation for formulating long-term strategy.[29] When the external environment is in a state of flux, the firm itself (in terms of its bundle of resources and capabilities) may be on a much more stable basis to define its identity. He surmises,

"...Hence, a definition of the firm in terms of what it is capable of doing may offer a more durable basis for strategy than a definition based upon the needs that the business seeks to satisfy." (Grant, 1995, p116)

This at first sight, seems in opposition to the principles held by researchers from the marketing field who profess, *'know your customers and target them'*, and *'monitor and understand your competitor'* (Narver & Slater, 1990), but as the well cited examples of Honda and the 3M Corporation illustrate[30], there need not be conflict. On the contrary, these examples emphasise the necessity to marry internal strengths and weaknesses with external threats and opportunities.[31] It is merely that the firm's

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[29] A point raised by Williamson (1975) is his criticism of the strategic view.

[30] Honda's strategy since its founding in 1948 has been built around its expertise in the development and manufacture of engines; this capability has successfully carried Honda from motorcycles to a number of gasoline-engine products. Similarly, the expertise of the 3M Corporation in the application of adhesive and thin-film technology to new product development has provided the basis for successful diversification across a broad range of products.

[31] Grant (1995, p117) seems to see it as a choice between adopting either an internal or external strategic approach, seeing the first in terms of success and the second in terms of failure. He cites a famous typewriter company's unsuccessful attempt to convert to the PC market as an example of this

resources and capabilities form the basis upon which a firm's competitive advantage is built. The profits derived from these competitive advantages represent rents earned by the resources deployed. Once the firm has identified its resources and located strengths and weaknesses, it is then in a position to identify its capabilities. From here it can appraise the rent-generating potential of resources and capabilities in terms of creating, sustaining and exploiting competitive advantage and only then is it in a position to select a strategy that best exploits the firm's capabilities relative to external threats and opportunities. This has been developed into what has become known as the *'competence perspective'* of the firm (Prahalad & Hamel, 1990; Foss, 1993; Hamel & Prahalad, 1994).

Criticism of the resource-based argument tends to revolve around three key points (*c.f.* Priem & Butler, 2001):

- That the resource-based theory is a tautology.
- That the argument fails to acknowledge that many different resource-based configurations could generate the same value for firms and thus would not be sources of competitive advantage.
- That the theory has limited prescriptive implications.

Barney (2001) addresses these issues. He suggests that all strategic management theories can be interpreted as tautological,

> *"For example, Porter's (1980) assertions about the relationship between industry attractiveness and firm performance can be reduced to tautology by observing that firms in attractive industries will outperform firms in unattractive industries and by defining industry attractiveness in terms of the ability of firms to perform well."* (p.41).

However, the point is not to rewrite strategies so that they are tautological, but to understand the parameters that make it possible to generate testable empirical assertions regarding the resource-based view. Barney (2001) argues that such parameters are clearly laid out in three key areas; value, rarity and imitability. He

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either/or choice. This suggests a potential weakness in the argument presented by Langabeer & Rose (2001) as their demand chain perspective adopts a primarily external approach.

cites the empirical research of Henderson & Cookburn (1994) and Makadok (1999) as examples of the operationalisation of the resource-based view. Both of these empirical papers present results that are consistent with the resource-based view.

The second criticism is concerned with the many different resource configurations that could generate the same value for firms and thus, would not be a source of competitive value. Barney (2001) labels this '*equifinality*'. Shoemaker, (1990, p.1179) defines competitive advantage as "*systematically creating above average returns*". Priem & Butler (2001) suggest that it is not the value and rarity of a resource that generates competitive advantage (as defined by Shoemaker, 1990) but rather the *relative value* of different resources and capabilities. Barney (2001) suggests the concept of substitutability counters this claim and explains that substitutability is defined with respect to strategic equivalence:

> *"Two valuable firm resources...are strategically equivalent when they can each be exploited separately to implement the same strategies."* (p.111)

Barney (2001) explains that even if a resource is valuable, rare and costly to imitate, if it has strategically equivalent substitutes that are themselves neither rare nor costly to imitate, it cannot be a source of sustainable competitive advantage.

The third criticism of the resource-based view is that the theory has limited prescriptive implications. It has been claimed that the attributes of resources that can generate strategic advantages and sustained strategic advantages identified by the theory are not amenable to managerial manipulation. Furthermore the definition of resources is all-inclusive and the theory is static and not dynamic. Barney (2001) counters this first claim by acknowledging that there are aspects of the resource-base over which the management have no control (especially path dependence and social complexity). However, he goes on to explain that resource-based logic can be used to provide theoretical underpinning to the process of benchmarking, to achieve unrealised potential of resources and to nurture and maintain resources of current strategic advantage.

Priem & Bulter (2001) argue that since the definition of firm resources (*c.f.* Wernerfelt, 1984; Barney, 1991), includes almost any firm attribute, then little perspective guidance can be derived from the resource-based view. Barney (2001) comments,

> *"Resource-based theorists do not pretend to be able to generate a list of critical resources every firm must possess in order to gain sustained strategic advantages. This is because...the value of particular resources depends on the specific market context in which they are applied."* (p.51)

Nelson & Winter (1982) have attempted to address the issue of static research. Their equilibrium analysis (rooted in '*evolutionary economics*'[32]) focuses on an economic system's equilibrium and compares this equilibrium to a system's current state. System dynamics are studied through the comparison of a system at one moment in time with the state of that system at a later time. This approach to resource-based logic is increasingly adopted by researchers (e.g. Barney, 1986a; Lippman & Rumelt, 1982)

Despite these criticisms, the resource-based view has gained a wide following and has crossed the divide from strategy to marketing. In what they label '*resource-advantage theory*'[33], Hunt & Morgan (1995) discuss the resource-based view in a marketing context. Specifically they refer to resource-advantage theory as,

> *"...the direct fusing of marketing's heterogeneous demand theory with management's resource-based theory..."* (Hunt, 1997, p.59)

The view that demand is heterogeneous has been a cornerstone of marketing theory for three decades and began with the formalisation of the concept through the development of heterogeneous demand (Alderson, 1957; 1965). As we have seen,

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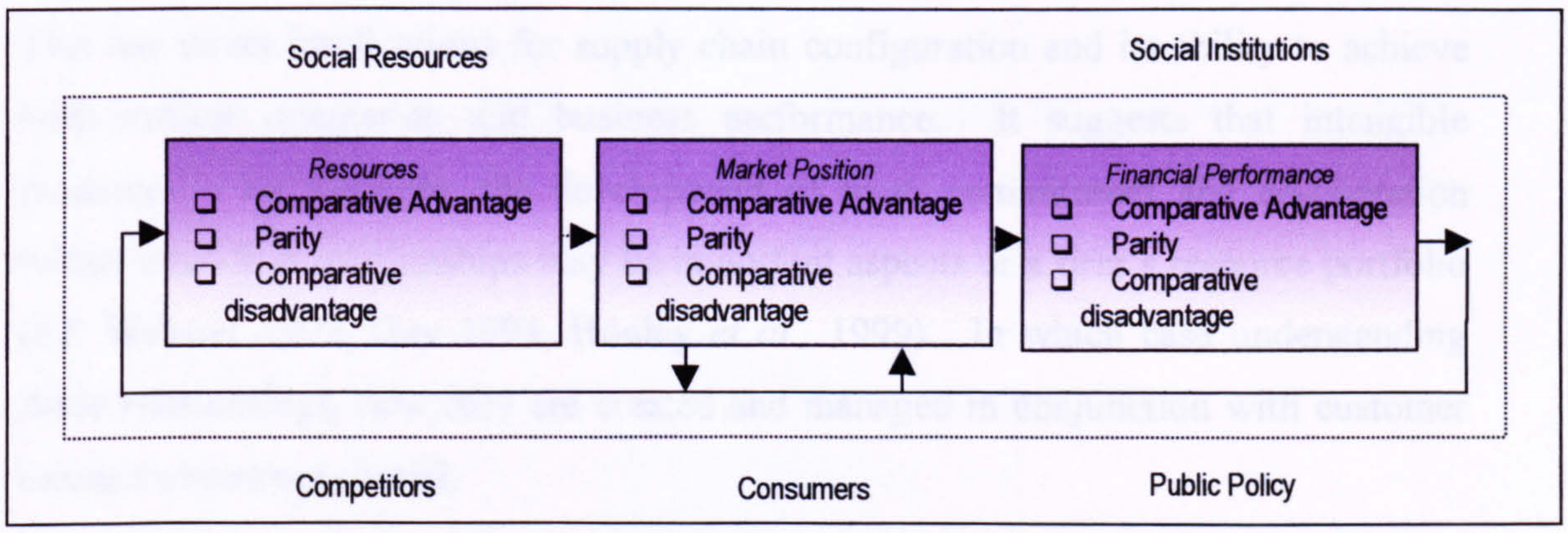
[32] Evolutionary theories in economics should explain the movement of economic variables over time by means of *"both random elements which generate or renew some variation of the variable in question and mechanisms that systematically winnow on extant variation."* (Dosi & Nelson, 1994, p.154)

[33] Because of the importance of the comparative advantage in resources, the marketing literature has referred to this theory as "*comparative advantage theory of competition"* (Hunt & Morgan, 1995).

resource-base theory views the firm as a combiner of heterogeneous, imperfectly mobile resources. Figure 4.2 illustrates the fusion of these two concepts.

Figure 2.3 A Schematic of the Resource-Advantage Theory of Competition



Read: Competition is the disequilibrating, ongoing process that consists of the constant struggle among firms for a comparative advantage in resources that will yield a marketplace position of competitive advantage and thereby superior financial performance. Firms learn through competition as a result of feedback from relative financial performance 'signalling' relative market position, which in turn signals relative resources.

Source: Hunt (1997)

The fusion of these two concepts allows considerations of market segments, assumes imperfect information about product characteristics, benefits, availability and prices of all products in the marketplace. It assumes that moral codes prevent individuals always acting in an opportunistic manner (*c.f.* Williamson, 1975). This adds a new dimension to the transaction cost and vertical integration theories, coming from a neo-classical background. Perhaps the most significant aspect of resource-advantage theory for this thesis is the way it defines resources. Resources are defined as tangible and intangible entities that are available to the firm and enable it to produce efficiently and/or effectively a market offering that has value for some market segments. Here we recognise commonalties with demand chain theory (Langabeer & Rose, 2001). Hunt (1997) explains,

> *"As such, resources are not restricted to a firm's tangible assets, but are anything available to the firm that has an enabling capacity. Therefore, resource can be financial (e.g. cash reserves and access to financial markets), physical (e.g. the skills and knowledge of individual employees), organisational (e.g. competencies, controls, routines and cultures),*

informational, (e.g. knowledge about consumers, competitors, and technology) and ***relational (e.g. relationships with competitors, suppliers and customers).*** *"* (p.64: emphasis added)

This has direct implications for supply chain configuration and its ability to achieve both market orientation and business performance. It suggests that intangible resources – for example, the development of trust, commitment and co-operation within inter-firm relationships may be important aspects of a firm's resource portfolio (*c.f.* Webster 1992; Day 1994; Hooley *et al.*, 1999). In which case understanding these relationships, how they are created and managed in conjunction with customer demands becomes crucial.

2.1.6 Relationship Marketing Theory

In Section 2.1.1 of this chapter we discussed the marketing concept and its operationalisation via the market orientation construct. Perhaps the most widely accepted definition of marketing has been that offered by the American Marketing Association (1985). According to the AMA[34], marketing involves the integrated analysis, planning and control of the *'marketing mix'* variables[35] to create exchange and satisfy both individual and organisational objectives. Despite our previous discussion a further contribution needs to be made. This final consideration was highlighted so eloquently in the resource-advantage theory and concerns the consideration of inter-firm relationships as a resource and brings us full circle in our deliberations of supply chain configuration.

A growing number of academics are shifting their approach towards a new dimension of marketing, referred to in the literature as relationship marketing. These academics consider the AMA view of marketing outdated and relevant only to certain types of firms and markets (Hakansson, 1982; Gummesson, 1987, 1994; Grönroos, 1989, 1990a, 1994). Further, they argue the traditional AMA perspective is too clinical and based solely on short-term economic transactions. As noted by Möller (1992), the AMA view also,

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[34] American Marketing Association
[35] Product, price, promotion and place (distribution)

> *"...presumes primarily a stimulus-response relationship between the firm and its customers (where the customer markets are comprised of passive, independent actors)"* (p.383)

This *'new paradigm'*, referred to as Relationship Marketing, has emerged from a large volume of empirical and theoretical literature.[36] Six streams of research can be identified, each examining marketing from a different perspective:

- From a services context (e.g. Berry, 1983, 1995; Grönroos, 1990a).

- From an inter-firm exchange perspective that encompasses both the examination of buyer-seller relationships in the context of resource dependency theory (e.g. Hakansson, 1982; Hallen *et al.*, 1987; Ford, 1990) as well as the study of constructs underlying inter-firm relationships (e.g. Dwyer *et al.*, 1987; Wilson, 1995).

- From the marketing channels perspective, where early interest focused on vertical marketing systems (e.g. Bucklin, 1970). However, as Weitz & Jap (1995) observe, current channel research has shifted to examine control mechanisms (Brown *et al.*, 1995) and the development of effective and efficient channel relationships (Buzzell & Ortmeyer, 1995).

- From the network relationships perspective (Johanson & Mattsson 1985). Here the emphasis is on industrial markets and the sets of relationships that connect multiple organisations.

- From the strategic management literature, which draws on recent conceptualisations about the role of relationships in value chains (Normann & Ramirez, 1993).

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[36] See Möller (1992) for a summary of major research traditions in marketing.

- From the information technology literature, which examines the strategic impact of information technology on the relationships within firms and between firms (Scott-Morton, 1991; Berry, 1995; Abecassis, Caby & Jaeger, 2000).

Drawing these streams of research together proves the basis for a view of marketing as an integrative activity involving personnel from across the organisation, in inter-firm relationships with emphasis on facilitating, building and maintaining relationships over time. Grönroos (1997), defined the purpose of marketing in this new context as:

> *"...the process of identifying and establishing, maintaining, enhancing and when necessary terminating relationships with customers and other stakeholders, at a profit, so that the objectives of all parties involved are met, where this is done by a mutual giving and fulfilment of promises."* (p.407)

But this only stands as a further contribution to the plethora of definitions of Relationship Marketing. As Gummesson (1994) observes, multiple uses of the term relationship marketing are perhaps not surprising given the complexity of relationships themselves. Brodie *et al.* (1997) identify four broad definitions of the term. They distinguish between streams of research that discuss relationship marketing as an *'elaborate form of database marketing'*[37], relationships between businesses and their customer base, relationships through a *'customer-partnering'* approach and a *'catch-all'* approach encompassing all of the previous perspectives (*c.f.* Gummesson, 1994; Morgan & Hunt, 1994). The customer base approach emphasises customer retention (Parvatiya, Sheth, & Whittington, 1992; Lemon, White & Winer, 2002), but by its very nature excludes relationships with suppliers or other supply chain partners. The customer partnering approach involves the buyer in the design and development of the seller's product or serviced offerings (Magrath & Hardy, 1994; Rindfleisch & Moorman, 2001) and co-operative relationships are established with other supply chain members (Anderson & Narus, 1990; Skinner, Gassenheimer & Kelley, 1992; Siguaw, Simpson & Baker, 1998). This implies

[37] Defined as a technology-based tool used by firms to acquire and manage customers (Peppers & Rogers, 1995).

interaction between the buyer and seller and a reasonably symmetric and dyadic relationship between the firm and the customer. This perspective focuses on relationship as the core element of marketing and bases the relationship construct on trust, personal interaction and promise (Ford, 1984; Grönroos, 1990b; Blois, 1999; Kasper-Fuehrer & Ashkanasy, 2001).

Brodie *et al.* (1997), observe a further complication arising from the language used in this literature. Through the example of the term *'interaction'*, they demonstrate how commonly used terms are given different interpretations. Blattberg & Deighton (1991) and Fuhrman (1991), use *'interaction-based'* or *'interactive marketing'* to describe the use of electronic media to communicate and interact with customers. Whereas Hakansson (1982), and Wilson & Jantrania (1994) describe the *'interaction approach'* as the dyadic buyer-seller relationships involving on-going interpersonal contact based on mutual goals, trust, commitment and a social process. Similarly, *'network marketing'* has a number of meanings, with some literature referring to it as a form of multi-level marketing (Fogg, 1995) or vertical integration (Johnston & Lawrence, 1988). But the label *'vertical integration'* suggests the opposite to the *vertically de-integrated* supply chain configurations, which are being increasingly adopted by firms (see Chapter 1, Section 1.1). Gummesson (1994) defines these organisational forms as involving relations that have at their core,

> *"...the creation, utilisation and maintenance of* [a] *network* [of relationships between firms]*"* (p34.)

However, a thread of commonality is woven through this proliferation of definitions, as Webster (1992) notes,

> *"...all are characterised by flexibility, specialisation, and an emphasis on relationship management instead of market transactions."* (p.3)

Finally, to add to this confusion (as Brodie *et al.*, (1997) observe), the terms *'interaction approach'* and *'relationship marketing'* seem to have been used interchangeably in the literature (e.g. Grönroos, 1990a; Morgan & Hunt, 1994). In

her 1997 paper Grönoos again highlights the difficulties created by language in this literature, commenting,

> *"This new marketing paradigm has been called 'relationship marketing'. It would be more accurate to use the term 'relational marketing', because it indicates an alternative way of looking at the marketing phenomenon, whereas the term relationship marketing easily is interpreted as just a subset of something else, or in the worst case as yet another tool in the marketing mix. However, because relationship marketing already has become a widely used term, it is used in this article as well interchangeably with the expression rational marketing to mean an approach to marketing that is based on a relational perspective."* (p.407)

Despite these differences common themes can be found. The literature emphasises the difference between '*pure transactions*' and the building of '*relationships*'[38] between supply chain members. Further, empirical evidence supports the widely held belief that the ability to create '*influence*' through inter-firm relationships is associated with increased business performance (Johnston & Lawrence, 1988). Webster (1992) distinguished between different types of relationships and recognises a relationship continuum (*c.f.* Mattsson, 1997; Möller & Halinen, 2000). This concept appears in the vertical integration literature (Mahoney, 1992) and resource-based literature (Hunt, 1997).

Consensus is reached on some of the vital components of a relationship including trust, co-operation, commitment (Ganesan, 1994; Morgan & Hunt, 1994; Sirdeshmukh, Singh & Sabol, 2002), channel communications (Mohr & Sohi, 1995; Duncan & Moriarty, 1998), channel power (Gaski & Nevin, 1985; Munson, Rosenblatt & Rosenblatt, 1999; Ailawadi, 2001; Bloom & Perry, 2001), channel leadership (Schul, Pride & Little, 1983; Meyer & Collier, 2001) and the use of technology (Berry, 1995; Möller & Halinen, 2000; Earl & Khan, 2001). Indeed some attempts have been made to synthesise these views (Wilson, 1995; Brodie *et al.*, 1997; Mattsson, 1997; Möller & Halinen, 2000). It is now widely accepted that inter-firm

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[38] For a more detailed discussion on this distinction see Grönroos (1997, p.408).

relationships must be viewed as a multidimensional construct, though little empirical evidence exists to clarify and reconcile these various views.

2.2 What Factors Affect Supply Chain Configuration? A Summary

2.2.1 According to Market Orientation Theory

- Organisational systems are closely associated with market orientation behaviours.
- Market orientation.

2.2.2 According to Transaction Cost Theory

- A high degree of uncertainty/volatility.
- The costs of negotiating and enforcing contracts.
- The level of asset specificity required.
- The level of externalities.
- The number/availability of participants in the market.
- Economies of scale and scope (do financial ownership costs outweigh the benefits of this type of integration?)

2.2.3 According to Vertical Integration Theory

- Economies of scale and scope.
- Complex co-ordination and control issues.
- Plant capacity disparities at various supply chain stages.
- Technological factors.
- Financial ownership/inter-firm relationship choice/preference.
- The firm's approach to efficiency.
- The firm's approach to effectiveness.

2.2.4 According to the Strategic View

- Barriers to entry.
- Avoidance of market rationing regulation.
- Avoidance of price and tax regulation.

2.2.5 According to Resource-Based Theory

- The identification of resources.
- The application of resources to maximise rents.
- The firm's identification of capabilities/core competencies.
- The '*equifinality*' of competitive advantage.
- Inter-firm relationships.

2.2.6 According to Relationship Marketing Theory

- Trust.
- Commitment.
- Co-operation.
- Channel leadership.
- Channel communications.
- Channel power.
- Co-ordination technology.

CHAPTER 3

Exploratory Study

Introduction

After examining the population of UK firms within which this research is based, this chapter focuses on the exploratory research methodological procedures. The exploratory research was carried out in parallel with the literature review (Chapter 2) and significantly contributed to the iterative process of building a theoretical framework (Chapter 4). Finally, a pilot survey (conducted with twenty-four UK firm managers) was carried out at the end of the exploratory phase. These results are compared here with literature and key exploratory findings are presented.

3.1 The Population of UK Firms

The population of UK firms can be divided into two distinct sectors: manufacturing and services. Whilst the two are inextricably linked, their nature dictates that different supply chain configurations are adopted. Typically, manufacturing sector supply chains are long with numerous members, whereas service sector supply chains are often much shorter, involving two or three members only. Thus an understanding of these two distinct sectors is useful in providing a context for the interpretation supply chain findings.

3.1.1 The Manufacturing Sector

Manufacturing is by far the largest single contributor to the global economy for nearly three-quarters of the World's trade (Foresight, 2001). It is a significant component of the UK economy and generates two-thirds of the value of the UK's exports, directly provides 4.3 million jobs and accounts for 20% of GDP[39]. Other sectors in the UK are inter-linked with manufacturing and could not exist without it. Many service sectors such as wholesale and retail distribution, maintenance and after-sales services have manufactured goods as their *raison d'être* – and these services contribute further

to the GDP. The proportion of GDP that actually depends on manufacturing is greater than the 20% quoted above. This fact is often obscured by the re-categorisation of service functions that were previously classed as part of manufacturing before they were outsourced.

Manufacturing output in the UK is rising (by 0.9% in 2000). This contrasts with the early 1990's when it fell by over 7%. Productivity was expected to rise by over 4% in 2001 and export volumes by at least 9%.

UK manufacturing is also an important part of the global knowledge-driven economy. The UK plays a leading role in a number of sectors including pharmaceuticals, aerospace and food processing. Finally, the profitability of UK manufacturing increasingly depends on the high value-added outputs. Thus manufacturers must constantly look to develop and exploit new and specialised knowledge.

3.1.2 The Service Sector

The importance of the Service sector, and the attention it has been receiving, has increased steadily over recent years, not only in the UK but also worldwide. However, statistics currently available are still limited in comparison with those for the manufacturing industry. Despite this, government figures suggest that the service industries now dominate the UK economy. Services, including government services account for around 70% of GDP. Private sector services alone account for over 50% of GDP.

In 1995, the service sector accounted for two-thirds of value added as compared to 27% for production – largely manufacturing industries. Within services, government and other services – providing 23% of value added – include public administration and defence, education, health and social work as well as sewage and refuse disposal and recreational, cultural and sporting activities.

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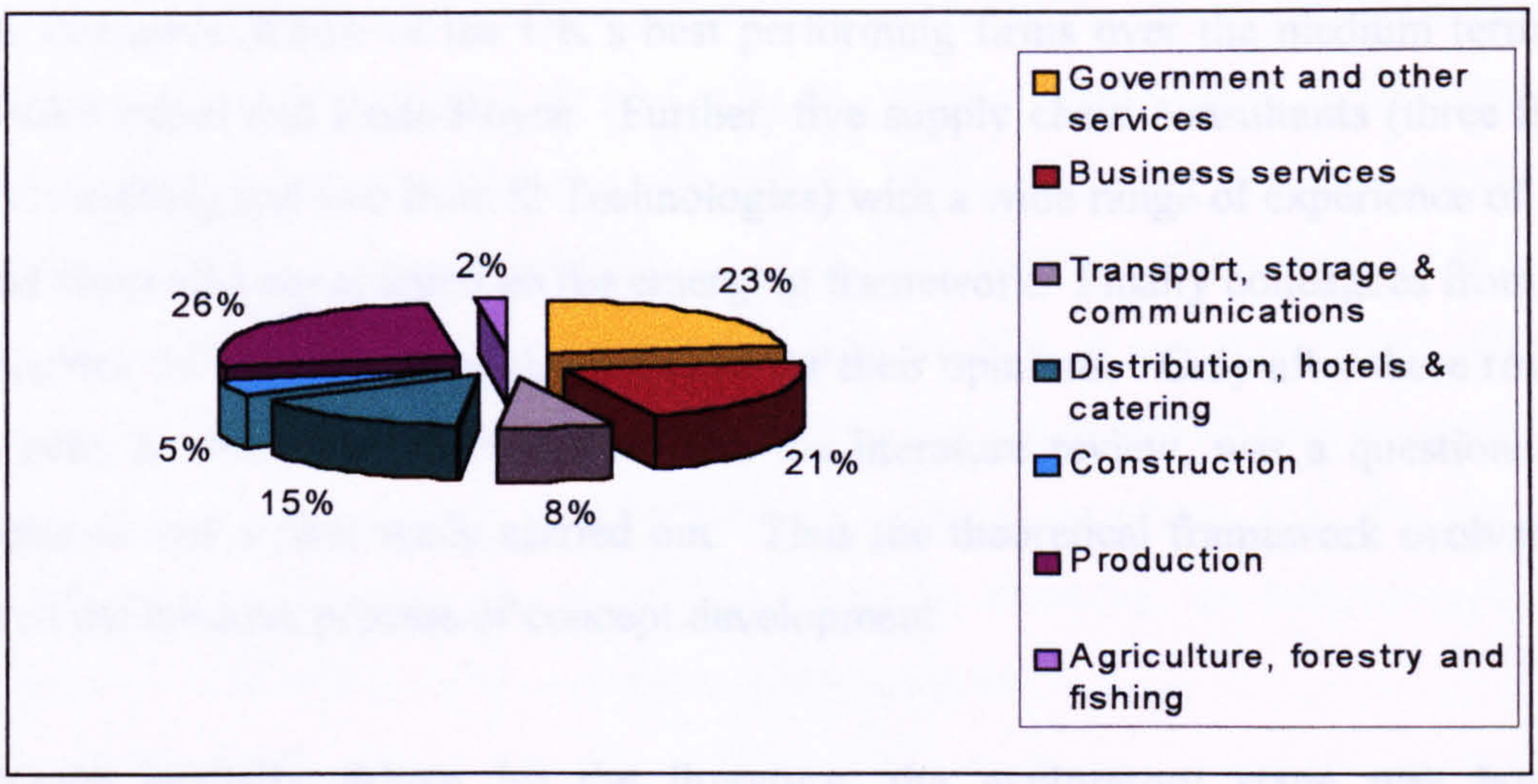
[39] Gross Domestic Product

Business services, which include financial intermediation, real estate, computer services, research and development and other business activities, provide 21% of value added. The next highest sub-sector is wholesale and retail trade, and hotels and restaurants with 15% (see Figure 3.1).

Figure 3.1 Share of Service Sector Output, 1999.



Source: National Statistics Office

Output of the service sector has generally been growing at a faster rate than production industries. In 2000, first quarter data published by the National Statistics Offices showed output of the production industries falling compared to the fourth quarter of 1999, while the service sector output grew. In the second quarter of 2000, output of the production industries rose faster than the service sector as a result of a surge in the energy industries. Manufacturing industry output also recovered in the second quarter of 2000 from the post-millennium doldrums. Growth was again concentrated in a few sectors – electrical and optical equipment, machinery and equipment – while the majority of sectors saw output fall.

Growth across the service sectors has been mixed. The strong growth evident in postal services and telecommunications in 1999, moderated in 2000 with output rising 2.5% in the first quarter and 1.9% in the second. Business services and financial industries increased strongly in the second quarter of 2000 following a slowing first quarter. Within distribution, an upturn in the second quarter in hotels and restaurants offset a decline in motor trades and sluggish retail sales.

3.2 Exploratory Research

3.2.1 Exploratory Sample & Procedure

The literature review (Chapter 2) went some way to identifying the theorised dimensions of supply chain configuration and its possible relationship with market orientation and business performance. These dimensions were discussed in detail with managers of two of the UK's best performing firms over the medium term[40] - Rentokil Initial and Rolls-Royce. Further, five supply chain consultants (three from PA Consulting and two from i2 Technologies) with a wide range of experience of UK based firms also commented on the emerging framework. Finally colleagues from the University of Warwick were also solicited for their opinions. Only after these results had been considered in conjunction with the literature review, was a questionnaire developed and a pilot study carried out. Thus the theoretical framework evolved as part of the iterative process of concept development.

Although partially driven by the literature, the exploratory stage was largely inductive. The main objective of the exploratory research was to gather preliminary data about supply chain configuration typologies and understand how such configurations were implemented (i.e. its dimensions). Adopting a semi-structured interview approach to this inductive research negates the need for a sampling procedure as the objective is to,

> *"expand and generalise theories (analytic generalisation) and not to enumerate frequencies (statistical generalisation)."* (Yin, 1994, p.10)[41]

The two firms selected for the exploratory study conformed to three key criteria: one firm was to be from the manufacturing sector and one from the service sector. Each firm was to be a high performance firm with outstanding performance over the medium term. Firms were to be of a similar size (number of employees, sales volume). The exploratory interviews were conducted with managers at each company and were supported by data obtained from several internal sources. Interviews with

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[40] We used a four year period to represent the medium term; from 1996-1999
[41] For further details regarding the exploratory methodology see Chapter 5, Section 5.2.3.

supply chain consultants allowed us to compare the results from two specific sectors with the wider UK business population.

3.2.2 Level of Analysis

Luck & Rubin (1987) suggest that qualitative analysis must be supported by a *"specified orderly process"* (p.611). To help us achieve this, the exploratory research model was developed through three levels of analysis: 1) the firm, 2) the industry sector and 3) the economy (Pettigrew & Whipp, 1998, p.28). Accordingly, Pettigrew & Whipp's model suggests that key issues at the firm level should include the internal capabilities of a firm, the basis on which a firm decides to compete and its chosen strategic approach. At level two, the sector level, key issues should have relevance to the particular industry under investigation (e.g. market structure, industry maturity and commercial networks), and at the third level, the economy, the discussion should provide an overall perspective; a cross industry analysis.

3.2.2.1 Level One: The Firm

At this level of analysis two different managers were interviewed at each company. Each manager was involved in some way with supply chain configuration. In order to select the two companies two major criteria were used: 1) the role that the firm plays in the sector within which it operates and 2) the importance of that sector to the company. The initial secondary research into the UK business population suggested two principle sectors; manufacturing and services. These sectors could then be subdivided into smaller industry sectors, e.g. food processing, textiles, retail, wholesale. However, it was decided to select the top-performing firm from each of these two primary sectors. Sources of business performance information included the FT 100 index[42], the Capex Scoreboard[43] and FAME.[44]

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[42] The FT 100 index is an index of the top 100 UK companies compiled by the Financial Times.
[43] The Capex Scoreboard brings together the capital investment figures published in company accounts of the 500 top UK companies. Using the FTSE sector classifications and FTSE listing status classifications, the companies are listed by decreasing Capex (capital expenditure). As well as Capex figures the list also includes information on accumulated capital expenditure in the form of Gross and Net Tangible Fixed Assets. Values are given for sales, profit and employee numbers as well as ratios between many of these quantities. The focus on the company level is deliberate as it is at this level that decisions are made about levels of Capex which in turn affect the innovative capacity of the organisation.

The two top performing firms that agreed to take part in the research were Rentokil Initial and Rolls-Royce, from the service sector and from the manufacturing sector respectively.

Traditionally best known for pest control and towel services, Rentokil Initial today is a major provider of electronic security and manned guarding, hygiene and cleaning services, distribution and plant services, personnel services and conference and training centre facilities. The company also provides a range of property services and is the world's leading supplier and maintainer of tropical plants. Within Rentokil Initial is the world's largest commercial pest control company.

Rentokil Initial's 140,000 employees provide services in over 40 countries worldwide, including all the major developed economies of Europe, North America, Asia Pacific and Africa. During the next few years all Rentokil Initial services will be re-branded under Rentokil or Initial to take greater advantage of the established reputations of their brands for delivering consistent high standards of service.

Rolls-Royce, one of the world's leading manufacturers in civil aerospace (aircraft engine manufacture) describe themselves as,

> *"delivering shareholder value by understanding customers' requirements, continuously improving performance with the object of becoming our customers' preferred supplier and investing to secure leading positions in our key markets of civil aerospace, defence and energy."* (Rolls-Royce, 1999)

After selecting the sector and companies to study, the Purchasing Directors of each company were contacted by telephone and interviews arranged. During the interviews permission was obtained to conduct further interviews with other members of the company who were thought to have an impact on supply chain configuration considerations (i.e. operations managers, communications managers and marketing managers). Finally, secondary sources of company information were referred to including company reports, industry reports and reports in the press.

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[44] FAME is an electronic database that holds information from published company accounts on UK based firms.

3.2.2.2 Level Two: The Sector

It was considered that this cross-company investigation should not be restricted by a single sector, as this would provide a more in-depth understanding of the supply chain configuration phenomena. As the majority of research into inter-firm relationships had previously been industry specific (e.g. Gaski & Nevin, 1985; Schul, Pride & Little, 1983) it was thought that a cross-sector approach would expand and further test the disparate supply chain configuration dimensions referred to in the literature (*c.f.* Mohr & Sohi, 1995; Gassenheimer & Ramsey, 1994). Further, we found no evidence in the literature of the service sector considering their supply chain as a fundamental driver of business performance objectives. We wanted to see if, as we suspected, the principle dimensions of supply chain configuration applied equally to the service and manufacturing sectors. Finally, the industry sector that a firm belonged to might well define that firm's position in the supply chain. For example, Tesco might be defined as a '*general retail*' service sector firm under the FTSE classification. This positioned the firm at the end of the supply chain. Alternatively, a noodle manufacturer such as Nestle may well be part of the same supply chain (being a supplier to Tesco) but would be positioned upstream and its market sector defined in the manufacturing sector as a '*food processor*'.

At this stage interviews were not only conducted with the directors of Rolls-Royce and Rentokil but also with five supply chain consultants. These consultants were from two of the UK's leading consultancies in this area; PA Consulting and i2 Technologies. Finally, as part of the iterative process between the literature review and exploratory study, a questionnaire was developed. The pilot study needed to test the questionnaire for face and content validity. To do this a matched pairs sample of four high performance and four low performance companies was contrived and the questionnaire completed by three managers in each company (see Chapter 5, Table 5.2, p.134). These companies, having agreed to take part in the questionnaire-testing phase, also agreed to take part in the later stages of the exploratory research. This gave us access to more detailed sector data in three key market sectors of the UK economy; automobiles (car component manufacturers), aerospace and defence

(marine engine manufacturers), and support services (banking services and education/training).[45]

In summary, at the sector level of analysis, interviews were conducted with managers operating in three key industry FTSE classification sectors; aerospace and defence, automobiles and support services. Overall, the exploratory study was conducted with 27 managers and was supported by data obtained from several internal and external sources. Of the managers involved with this stage of the research 15 were interviewed, 12 commented on the questionnaire and 27 managers completed it. All interviews were carried out between December 1999 and March 2000.

3.2.2.3 Level Three: The Economy

Due to financial and time limitations, it was not possible to study all UK industries in-depth at this stage. However, despite all these limitations the exploratory research examines two of the UK's highest output sectors, which in total accounted for 48% of output from UK based firms in 1999 (see Figure 3.1). According to the National Statistics Office, this is set to rise to 54% by the end of 2002.

3.3 Preliminary Findings

In this section, key preliminary findings are expanded upon. These findings are largely consistent with the findings presented in the literature review (Chapter 2). Furthermore, the findings support the relationships presented in the conceptual model (Chapter 4) but have not been addressed in the literature. Therefore, this section hopes to contribute to the supply chain configuration literature by presenting new grounded findings on three levels; 1) the identification of the multi-dimensional nature of supply chain configuration, 2) the relationship between supply chain configuration and market orientation, and 3) increasing our understanding of how market orientation might leverage the supply chain configuration-business performance link.

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[45] See Chapter 5, Table 5.2

3.3.1 Defining Supply Chain Configuration

In common with many of the studies on vertical integration (e.g. Harrigan, 1984, 1985a, 1986; Johnston & Lawrence, 1988; Krause, Macbeth, Ferguson & Neil, 1994; Frohlich & Westbrook, 2001), this research focuses on the supply chain and the level and type of integration of various supply chain stages. The scope of this thesis does not include many operations management issues that are intrinsically linked to supply chain configuration design, e.g. JIT (*c.f.*, Dong, Carter & Dresner, 2001) or concurrent engineering (*c.f.* Koufteros, Vonderembse & Doll, 2001).

The literature review (Chapter 2) identified three potential approaches to supply chain; 1) transactional relationships, 2) inter-firm relationships and 3) ownership of supply chain stages. Whilst these three theorised methods of integration lacked empirical support, anecdotal evidence suggested the concept of transactional relationships (Williamson, 1975) and ownership (Harrigan, 1985a) are widely understood. It is when we consider the continuum between these poles that the water becomes muddied. Grönroos (1990a) and Webster (1992), refer to the complex continuum of increased commitment and co-operation between firms as the *'relationship continuum'*. The objective being to develop *control* or exert *influence* over another supply chain member's business activities in order to increase business performance (also see Chapter 4, Section 4.1). The objective then was to develop a clearer understanding of relationships in the relationship continuum within the context of desired outcomes i.e. improved business performance.

When managers were asked if they could explain what they thought constituted a good inter-firm relationship, typical responses began, *"...difficult to explain..."* *"...hard to define..."* and *"I'll have to think carefully about that one..."*. This is perhaps not surprising when we consider the relationship marketing literature, which, since its emergence in the early 1990's, has failed to propose and test a measure for inter-firm relationships (*c.f.* Berry, 1995; Grönroos, 1997; Möller & Halinen, 2000). Whilst much research has been conducted into the components of inter-firm relationships, little has been done to synthesise these streams. To this end the interviewees in this exploratory phase were tasked with defining the three approaches

to the supply chain, and more particularly the dimensions of inter-firm relationships. The following section presents key findings in this area.

3.3.1.1 Defining Inter-firm Relationships

The interviews revealed how difficult it is to assess inter-firm relationships. However, it was possible to find some consensus between our two companies (the economy level). This consensus was echoed by the general feelings portrayed by the industry consultants. Within a single company (firm level), different aspects of inter-firm relationships were emphasised as more or less important. This is reflected in some of the responses obtained during the interviews. For example, speaking of downstream relationships with customers, one Rentokil employee explained,

> *"it's particularly important to gain trust at the front end. If we don't we're not going to get any information."* Rentokil

Associated with trust, commitment from a second party was presented by this interviewee as if it were an outcome of the development of trust. Trust appeared closely related to a strong desire to derive commitment from strategic partners. The interviewee continued,

> *"I've also got to do it in such a way that we gain commitment from the lads and that we take their ideas because otherwise we're in our ivory tower, trying to pretend that we know what we are buying, when we're not in a position to know."* Rentokil

Other interviewees emphasised the importance of co-operative relationships. They talked about working in teams, working with suppliers and customers as if firm boundaries did not exist. A Rentokil respondent explained how they tried to view strategic partners. He cited the example of their specification process for suppliers.

> *"What I try and do with the supplier is to give them a performance spec which means, not 'what is it?' but 'what can it do?'...".* Rentokil

Here the concept of capitalising on a partnering firm's core capability is portrayed and the importance of internal procedures and company culture in developing such relationships is underlined. He continues,

> *"Rentokil has a particular culture; it's our system of beliefs; the objectives of the company; the way business is done..."* Rentokil

Rolls-Royce shared a similar perspective. Respondents spoke of the fostering of a 'culture of co-operation' and illustrated this with examples of cross-functional and inter-firm projects on both sales pitches and product development programmes. Their Purchasing Director explained the role this took with key suppliers,

> *"We try and do it as part of an integrated product team so that we have Rolls-Royce engineers and suppliers as part of the same team who are working together. Because at the end of the day Rolls-Royce have to do the systems integration...it can't happen in isolation."* (Rolls-Royce)

Projects such as this were acknowledged as taking up considerable resources. Whilst the benefits they brought were thought worthwhile by all respondents, the efforts involved in the management and co-ordination of such ventures was thought to be considerable. Communication between the various parties had to be constant and firms spoke of an *'openness'* between themselves and their partners. Other words used to describe this flow of information included, *'loyalty'*, *'trust,'* *'inter-dependence'* and *'sharing'*. One Rolls-Royce interviewee commented, *"it's impossible to know who's working for which company sometimes."* A Rentokil respondent explained the role of two-way communication in the development of the company's procurement strategy. He explains,

> *"...there's no one person who knows everything, you've got to ask the guys who are doing it. The only way that I can approach proper procurement strategy is by including these people. Because the real benefits of procurement are not what it is you buy but how you do it, and how it's used."* (Rentokil)

This suggests that there is not only a need for frequency in communications, as previously suggested, but that a degree of formality is also appropriate. This further suggests the need for a co-ordination partner within a relationship and the need for shared procedures and reporting structures. Furthermore, this creates a need for leadership in order to direct joint collaborative efforts (be it for sales or product development or service level agreements). In order for one party to provide leadership, surely a second party must be prepared to follow. This hegemonic relationship brings into play the considerations of power between strategic partners.

As a large customer both Rentokil and Rolls-Royce have the power to influence supplier behaviour. Rolls-Royce describes themselves as *'an attractive customer'* and as such they believe they have *'quite a lot of clout'*. In the same way Rentokil explain how they influence the procedures and behaviours of their suppliers. They put suppliers through a rigorous selection process. Having achieved approved status, suppliers then embark on a supplier development programme. This begins with a supplier assessment to identify strengths and weaknesses; whether suppliers have the right procedures in place to achieve Rentokil's objectives. Rentokil also demand the measurement of those procedures to ensure sound reporting and guaranteed financial recompense should all else fail. As one respondent explained,

> *"I'm trying to drive out the cost from process, I need to know that those processes are robust enough to drive that cost down. If the process goes wrong it would increase our costs so we need to be covered."* (Rentokil)

By using their power as a large and significant customer, both these firms have been able to implement leadership, influencing suppliers in the procedures adopted, the measurement of performance outcomes and the development of further cost savings and service improvements. This requires both companies to have a carefully calculated strategic approach to their supply chain configuration before they embark on relationships, but also to recognise that such relationships are dynamic. If strategic partners are to deliver continuous improvements then there must be room for flexibility within these relationships. Changes in technology were viewed as one of the most significant impacts on the relationship dynamic.

For Rentokil new technologies had meant the streamlining of internal processes and in one example the removal of an entire department, but generally the impact of the Internet, e-mail and the use of Extranets seemed to be downplayed. One Rolls-Royce interviewee proclaimed,

> *"I don't think technology aspects have anything to do with whether we make it or buy it"* (Rolls-Royce)

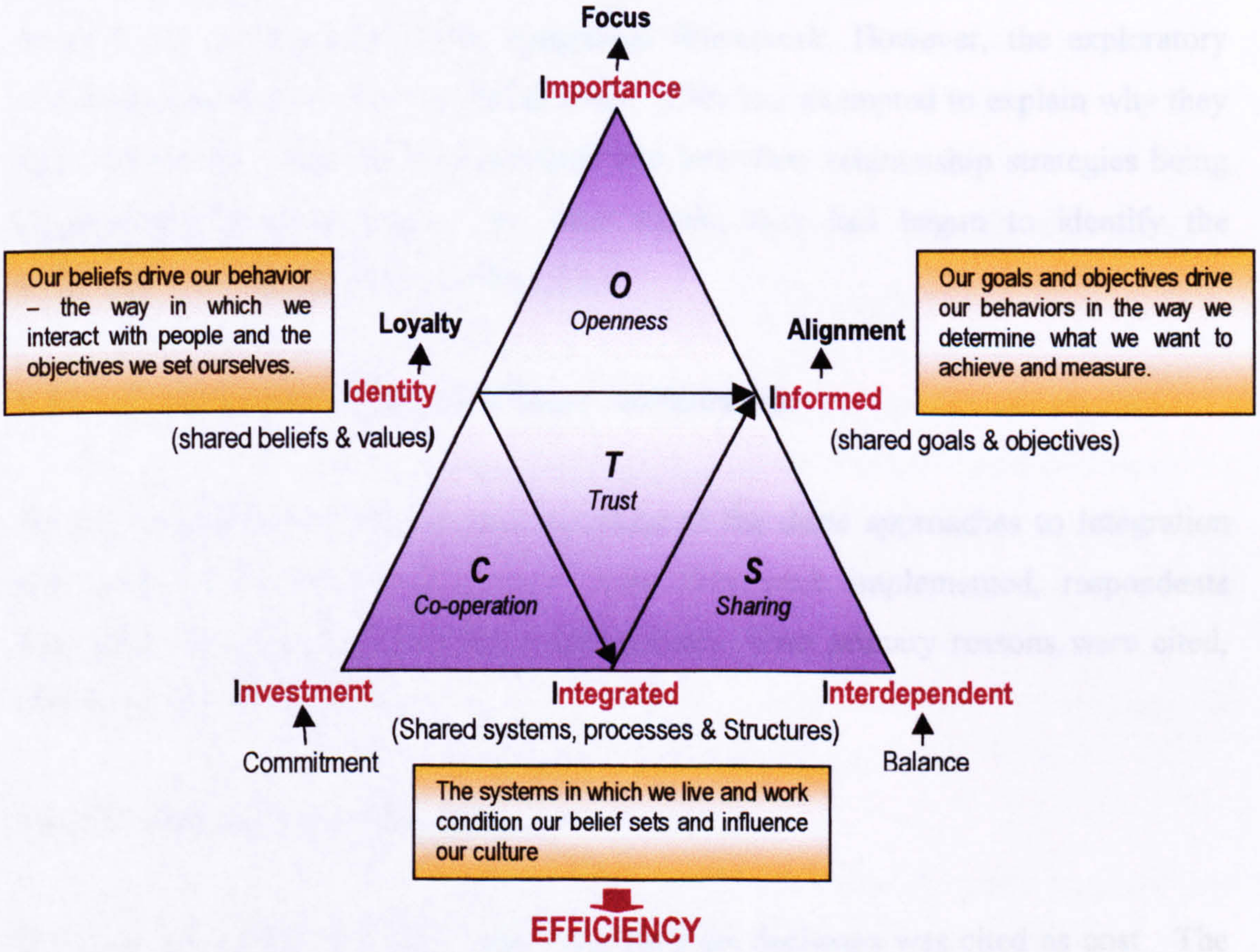
This might be true, but could it make a difference from whom they purchase? This was indeed the case at Rentokil, where working closely with a supplier, an electronic card scheme was developed that allowed employees to purchase petrol without personally incurring any expense. As a service provider, petrol (fuel) is one of Rentokil's largest infrastructure expenses. Principally carried by the individual employee, the slow processing of expense claims had prevented some employees from filling their tanks and thus prevented them from being on the road and generating sales. The electronic cards meant the customer facing employees were never out of pocket and never off the road. Equally, the supplier developed accurate sales forecasts from the data collected through the cards. This data, shared with Rentokil aided in negotiating much improved prices for the commodity purchasing of fuel. Finally, the expenses department employed five full time staff whose aim in life was to process expense claims for fuel. This department became completely redundant. Overall this exercise made a saving of £3millions. The co-ordination technology brought mutual gains for both supplier and Rentokil.

The cost savings described, created because of the application of co-ordination technology, result from increased efficiencies. Rolls-Royce was in the process of developing a business wide e-business strategy when we spoke with them. Their perception of co-ordination technology was similar. Their Purchasing Director explained,

> *"...there's a big potential I think in this industry to take cost out, although it's <u>not</u> capturing more customers but just running the whole thing more efficiently."* (Rolls-Royce)

The opinions of the industry consultants concurred with these findings. This was further underpinned by a schematic produced by one of the consultants and used as their principal guide in inter-firm relationship development. This model is thought to have been developed in conjunction with BAe.[46] It focuses on one of the key determinants of outsourcing – cost reduction (see Section 3.3.2). Using the cornerstones of Co-operation, Openness, Sharing and Trust (C-O-S-T) the objective is to develop shared goals and objectives in order to develop shared systems and procedures that increase added value within the supply chain and bring benefits to performance for all parties and ultimately for the consumer. This model summarises key components of an inter-firm relationship in what is referred to as the *'Partnership Triangle'* (Figure 3.2).

Figure 3.2 The Partnership Triangle



Source: Consultant Diagram, developed in conjunction with BAe

[46] BAe (British Aerospace) took part in the main study of this research and were shown this model. Both the directors viewing the model had seen it before suggesting it was the outcome of work with PriceWaterhouseCoopers. This consultancy venture is charted in a book, '*Vertical Take-off*' (Evans & Price, 1999). The book describes *' the inside story of British Aerospace's comeback from crisis to world class.'*

One limitation of the Partnership Triangle is its total focus on the efficiency perspective. This is very much in line with the traditional operations management perspective of supply chain management (*c.f.* Lee, Padmanabhan & Whang, 1997) but does not pay any attention to the effectiveness of any efficiencies or cost savings made (*c.f.* Langabeer & Rose, 2001). At Rentokil and Rolls-Royce we found evidence of forward facing effectiveness. Both the efficiency and effectiveness perspectives are considered in the following section (Section 3.3.2).

Having elicited what were considered to be the components of an inter-firm relationship from practitioners, we returned to the literature to further investigate what empirical and theoretical research had been carried out into the key areas identified: trust; commitment; co-operation; communications; leadership; power and co-ordination technology. These dimensions are discussed in greater detail in Chapter 4, through the development of the theoretical framework. However, the exploratory phase participants had raised a further issue. They had attempted to explain why they had adopted the ownership, transactional and inter-firm relationship strategies being implemented by their firms. In other words, they had begun to identify the determinants of supply chain configuration.

3.3.2 Determinants of Supply Chain Configuration

Having established a common understanding of the three approaches to integration and where within the firm's supply chain they were implemented, respondents discussed why such decisions had been reached. Two primary reasons were cited, efficiency and effectiveness.

3.3.2.1 Integration for Efficiency

The principal driver of supply chain configuration decisions was cited as cost. The drive to reduce costs through increased efficiencies is thought to be behind the current trend of increased outsourcing (*c.f.* Miles & Snow, 1986; Lonsdale & Cox, 1998; Magretta, 1998). As one representative from Rolls-Royce explained,

"We have to get fixed costs down. If you outsource it becomes a variable cost and your suppliers take the risks with you." (Rolls-Royce)

This notion of expecting suppliers to share business risk implies a level of commitment and the need to work in partnership. It also emphasises issues that revolve around cost, price and value. Interviewees raised many of these issues, for example, what value does one firm place on a supply chain activity? What is the cost of performing the activity in-house, or not performing that activity in-house? What is the cost of a failed outsourcing attempt? And what are the cost savings if they buy in goods on price? Interviewees also expressed their awareness of the implications of these issues for their customers. One respondent observed,

"What they're [customers] *concerned about is total cost of ownership. Not just what they pay for a new engine, but what it costs to keep it in the air."* (Rolls-Royce)

Cost considerations appear closely associated with a firm's concept of its own core competence. Rolls-Royce again,

"We're not the experts in a lot of the supplies that we use but our suppliers are. We focus on our core competence, which is the finished engine and some parts of the engine which give us some sort of strategic advantage. There are various pieces of the engine that we believe we can make in that way and no one else can. That gives us an advantage when we come to sell it – either in weight or performance…we've moved...to using suppliers engineering capabilities more in developing parts ...." (Rolls-Royce)

The concept of core competence, as we have seen (Chapter 2, p.56) suggests that firms channel scarce resources into key activities that create maximum added value and sustainable competitive advantage (*c.f.* Barney, 1991; Prahalad & Hamel, 1994). This means managers must make difficult supply chain configuration decisions: what should be outsourced and how? As one respondent noted,

> *"we have to be careful as we outsource, the classic thing with outsourcing is to outsource the thing that you don't realise what you're giving away."* (Rolls-Royce)

The strategic role that supply chain configuration plays in a firm's business performance is highlighted here. Rolls-Royce applies a simple matrix to aid their decision making in this area (Figure 3.3). As can be seen from the matrix, the less critical the activity is to the business, the less resource Rolls-Royce dedicate to the external relationship involved in the purchase of that product/service. But these decisions are made in conjunction with competitiveness considerations. The less adept Rolls-Royce considers itself in a particular activity, the more likely it is to be outsourced.

Figure 3.3 The Outsourcing Matrix for Rolls-Royce

Competitiveness (How good are we at this activity?)	Critical to the business: High	Critical to the business: Low
High	*In-house*	*Long-term Relationship* (Typically 3-5 year contract)
Low	*Joint Venture/ Strategic Partnership*	*Transactional Relationship*

Whilst this framework has been useful in aiding supply chain configuration decisions, as Rolls-Royce employees confessed, sometimes personal relationships or existing patterns of doing things cloud the decision making process. A Rolls-Royce employee admitted,

> *"A lot of the drivers of purchasing decisions are held up in the historical patterns. But we, like any company nowadays, don't have the capital to invest in making everything ourselves."* (Rolls-Royce)

Another area where the history of supply chain configuration works against a firm is where it has traditionally been vertically integrated through ownership and where

market fluctuations cause excess capacity problems. A Rolls-Royce employee explained how this environmental change had caused significant difficulties for one of their major competitors, Pratt & Whitney (PW).

> *"PW, who have lost market share...are restructuring their operations... closing plants because they've got to get the fixed costs down and their capacity down to match their volumes."* (Rolls-Royce)

The drive to cut costs, develop core competencies and reconsider historical trading patterns were thought to be the result of competitive pressure from the market place and the city. Shareholders, industry analysts and employees seem to be taking an ever closer interest in the business performance of their firms as the futures of these stakeholders become intrinsically merged with that of their company (*c.f.* Dooley & Lerner, 1994).

3.3.2.2 Integration for Effectiveness

The second area of supply chain configuration determinants revolved around the concept of effectiveness. As we saw in Chapter 1, Langabeer & Rose (2001) relate the concept of effectiveness to the demand chain, suggesting the fundamental reconfiguration of a supply chain in order to place the customer at the centre of all key supply chain decisions. Both firms interviewed for the exploratory phase demonstrated market orientated behaviour. We consider this to be closely associated with the effectiveness perspective on supply chains (*c.f.* Narver & Slater, 1990; Kohli & Jaworski, 1990). For example, in commenting on their strategic sourcing process, the Purchasing Director of Rentokil observed,

> *"In order to see what the worth of a particular supplier's offering is, you've got to find out what it means to the front end of the business."* Rentokil

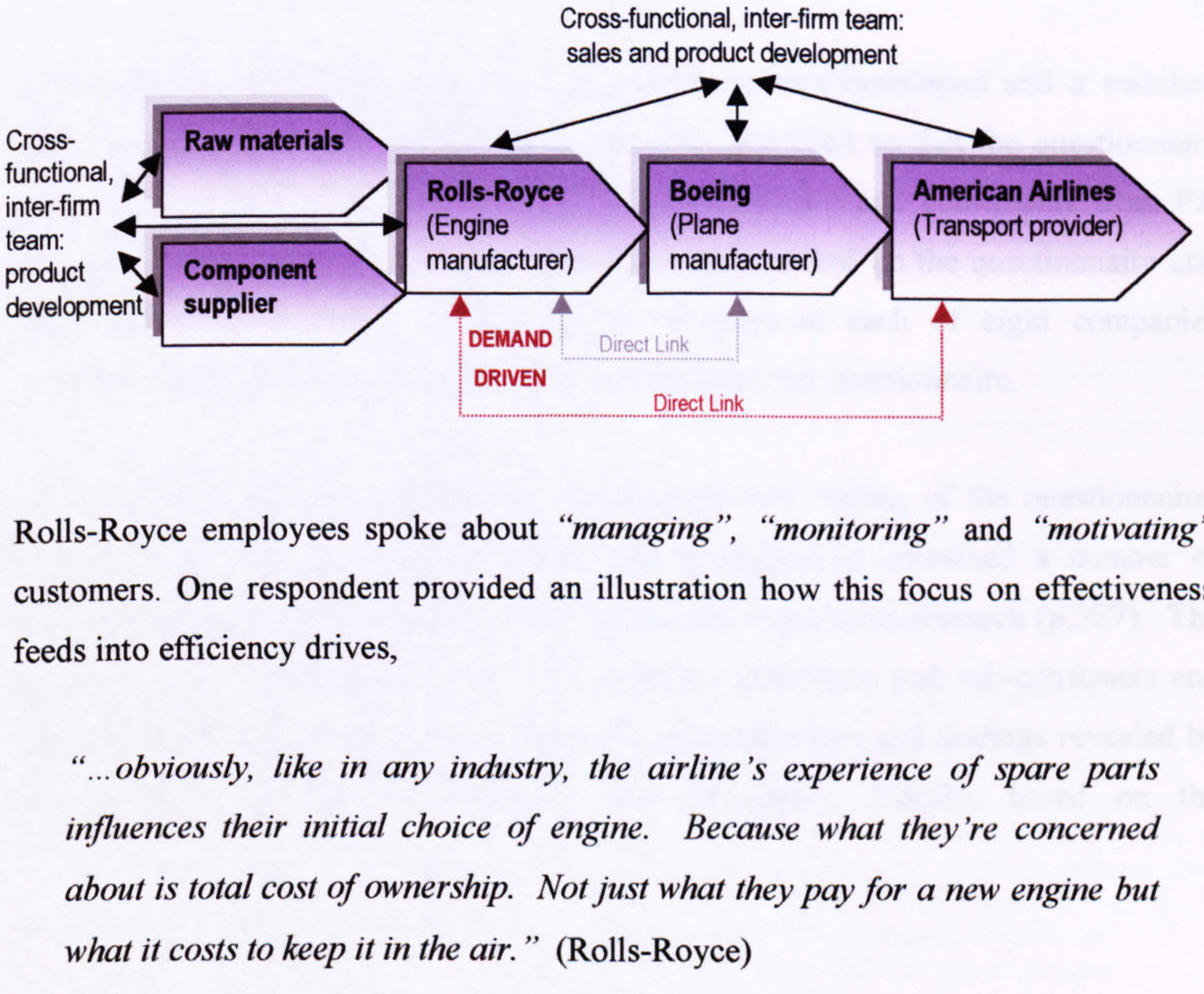
This comment suggests a strong awareness of the importance of effectiveness. If any supply chain actions do not deliver added value downstream of the supply chain, to the customer, then increased efficiencies and cost savings are redundant, particularly if they hinder the growth and development of the business at the customer interface

(*c.f.* Quinn & Hilmer, 1995; Lonsdale & Cox, 1998). Similarly, Rolls-Royce place the customer wants at the heart of the supply chain configuration and consequently at the heart of their efficiency drives. A respondent observed,

> *"... the market wants...; shorter lead times and low costs; and to get the inventory out...we're moving from a tactical to a strategic approach with this."* (Rolls-Royce)

This is illustrated by the relationships and linkages between supply chain members at Rolls-Royce (see Figure 3.4). Here Rolls-Royce is seen to be working closely with all supply chain members both upstream and downstream. This allows Rolls-Royce to gather information and learning about customer's needs and wants from two sources: 1) direct from downstream supply chain members and 2) directly from customers. Both these sources then influence configuration decisions upstream, creating what Langabeer & Rose (2001) call a *'demand chain'*.

Figure 3.4 A Demand Chain for Rolls-Royce



Rolls-Royce employees spoke about *"managing"*, *"monitoring"* and *"motivating"* customers. One respondent provided an illustration how this focus on effectiveness feeds into efficiency drives,

> *"...obviously, like in any industry, the airline's experience of spare parts influences their initial choice of engine. Because what they're concerned about is total cost of ownership. Not just what they pay for a new engine but what it costs to keep it in the air."* (Rolls-Royce)

These customer needs have resulted in the supply of some parts being outsourced, whilst the delivery and service of engines remains in-house, developed as a core competence because of its associated added value to customers.

Ultimately, customer's needs and wants have an impact on the supply chain configuration adopted. But as Porter (1980) observers, the industry environment can also influence structure. Rolls-Royce employees candidly admit that some of their suppliers are *"terrible!"* or *"less than satisfactory"*, but when the items purchased are of little value, and when there are few if any alternative suppliers, companies like Rolls and Rentokil feel bound to supplier agreements. They have no choice but to work with suppliers in order to render improvement. As one respondent succinctly put it, *"there is no plan B..."* This suggests that the industry structure (Porter, 1980), the competitive environment and ultimately a firm's competitor orientation (Day & Wensley, 1988; Narver & Slater, 1990) can influence a firm's supply chain configuration.

3.4 Pilot Study and Questionnaire Development

Following the exploratory analysis a questionnaire was developed and a matched pairs sample of high/low performance firms was identified so that the questionnaire might be tested. Managers at Rentokil and Rolls-Royce and consultants from PA Consulting and i2 Technologies completed and commented on the questionnaire and amendments were made. Finally, three managers at each of eight companies comprising our matched pairs pilot sample completed the questionnaire.

Several steps were taken during the development and testing of the questionnaire. Following Churchill's approach (1979), the questionnaire contained a number of indicators and measures that had already been used in previous research (p.377). The literature review (Chapter 2) was used to define constructs and sub-constructs and identify the items they comprised. Secondly, key indicators and findings revealed by the qualitative exploratory research were included. Finally, based on the

questionnaires provided by their authors[47], additional items and measures were included in the initial version.

The questionnaire was then tested for content validity and face validity[48]. Initially, to test the content validity of items, the questionnaire was discussed with three marketing lecturers and five doctoral researchers at the Warwick Business School. Their suggestions were incorporated. As recommended by Lichenstein *et al.* (1990), faculty members and marketing doctoral researchers were asked to rank the importance of each statement and indicate which items should be retained. The items, which most judges agreed should be retained, were kept for the next version of the questionnaire (Bearden *et al.*, 1989). Canvassing the opinions of three people who had no prior knowledge of supply chain configuration theory provided face validity for this version of the questionnaire. As a result of this process a more straightforward form of the questionnaire emerged.

The next step, in line with procedures adopted by previous researchers in the marketing field (e.g. Lichenstein *et al.*, 1990; Narver & Slater 1990), content validity was again assessed by judges (two university lecturers and two industry experts). The judges were asked to assess how representative each item was of the final construct.

Finally, six managers and five consultants involved in supply chain configuration assessed the remaining items. Additionally four managers completed the questionnaire. This stage of the process improved the questionnaire as new items were included that had not been identified through the literature review. Furthermore, the managers interviewed contributed by identifying key problems that were not identified during the preceding stages. For example, by the Purchasing Director at Rolls-Royce, there was some ambiguity about the direction of the relationship being investigated in Section C of the questionnaire (Appendix 2). Re-wording the

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[47] The author acknowledges the kind support of researchers who provided questionnaires used in their own research (Narver & Slater 1990; Siguaw, Simpson & Baker, 1998).

[48] *Content validity* is a subjective measure of the appropriateness of items according to a select set of reviewers who are acknowledged as having a degree of expertise on the subject. Despite not being a scientific measure of a survey instrument's currency, it provides a good foundation on which to build a methodologically rigorous assessment of a survey's instrument validity. *Face validity* is considered to be the least scientific measure of all validity measures (Litwin, 1995). However, simply canvassing opinions on the questionnaire, discussing it with individuals who have no subject expertise on marketing theory and supply chain configurations is extremely useful for clarification purposes.

introductory statements overcame this problem. Another problem concerned the scale to be adopted. Initially a 7-point Likert scale was proposed but several managers felt that this was too long and cumbersome. Consequently a 5-point scale was agreed. Also the direction of the scales was altered. Initially the questionnaire was to have the scales labelled positive to negative (strongly agree = 1 to strongly *dis*agree = 5; A lot = 1 to Not at all = 5) but this caused confusion amongst the majority of managers whose instincts were to move from negative to positive (strongly disagree to strongly agree) and so the scales were reversed. Because this problem was highlighted as significant at this stage and as the questionnaires were completed during face-to-face interviews, the researcher periodically confirmed the correct interpretation of the scale at several intervals during each interview both in the pilot study and the main study. This was a further benefit over a postal survey approach.

The appropriate technique for data analysis depends on the type of data, the research design and the assumptions underlying the test statistic and its related considerations, the power of the test. Because the type of data and the research design implemented were dependent on the level of access to organisations, we knew that there would be limitations to the quantitative analysis that could be carried out legitimately. The pilot study analysis enabled us to better understand the limitations and highlight the need for qualitative data in the main study.

3.5 Summary

The exploratory research was conducted at three different levels (the firm, the sector and the economy). The exploratory research began with in-depth interviews with managers at two of the UK's top performing companies – Rolls-Royce and Rentokil. Overall the exploratory study was conducted with 27 managers, 12 commented on the questionnaire and all managers completed it.

The exploratory stage was used for inductive research and to investigate further those variables and relationships acknowledged in the literature. The data from the in-depth interviews provided greater insight into the supply chain configuration phenomena, in particular to its form and determinants. The grounded findings also suggested that the

traditional approach to supply chain has its limitations. They revealed the existence of effectiveness determinants. These determinants were defined in a similar manner to two of the key market orientation dimensions – competitor and customer orientation. Thus, one of the main aims of this research will be to identify the inter-relationship between market orientation and supply chain configuration and ultimately how this affects business performance.

Based on the literature review (Chapter 2) and on the exploratory findings presented in this chapter, the next chapter will develop a conceptual framework of supply chain configuration and it's purported relationship with market orientation and business performance. This framework will then guide the main study qualitative data collection and analysis procedure and forms the basis of the operational model to be tested in the main survey.

CHAPTER 4

The Theoretical Framework: The Relationship between Supply Chain Configuration, Market Orientation and Business Performance

Introduction

A review of the literature reveals many diverse concepts and ideas emerging from the different disciplines. The majority of this literature had some contribution to make to our understanding of supply chain configuration. Whilst there was no single unified approach across the different literature streams, there were recurring themes. Most theories emphasised the ownership *or* relationship aspects of supply chain configuration but not both. Empirical works provided evidence of dyadic or triadic supply chain relationships but did not examine the supply chain in its entirety. Moreover, most theories emphasise industry and product characteristics and leave little room for discussion on the implications of supply chain configuration for market orientation and business performance.

This chapter develops an integrated theoretical framework where the dimensions of supply chain configuration can be analysed as possible determinants of market orientation and business performance. The objective is to yield a deeper and more comprehensive understanding of the supply chain configurations that currently exist and how they might benefit or hinder market orientation and consequently business performance. This approach is important to the business studies field, where much of the literature has been normative and has not demonstrated an understanding of current configurations adopted by firms or the likely effect in responding to customer needs, competitor actions or inter and intra-firm co-ordination between supply chain activities.

We illustrate our conceptual framework with examples taken from various manufacturing and retailing companies based in the UK. Nevertheless, we believe that the concepts are applicable more generally and the dynamics identified are not specific to the UK business environment.

This chapter is structured in eight sections. We begin by outlining the nature of supply chain configuration as a multi-dimensional construct. Each of the following sections identifies one of the dimensions of supply chain configuration and considers its likely relationship with market orientation and business performance (see Figure 4.1). Section 4.2 examines the supply chain configuration through the '*form*' of ownership adopted. The positive and negative effects of different ownership forms are then considered for their impact on market orientation. In Section 4.3 alternative methods of integration are explored. Integration through the development of inter-firm relationships is presented as a multi-dimensional construct, which affects *influence* over supply chain members that are not owned. Again, the likely relationships between vertical de-integrated configurations and market orientation are explored. Section 4.4 discusses the effect '*direction*' of integration has on market orientation. Integration through ownership and relationships (*influence*) is considered. Section 4.5 looks at the *degree* of integration within the supply chain. Section 4.6 examines which *stages* are most appropriately integrated and by which means (ownership form and influence), in order to achieve a high market orientation. Section 4.7 uses Porter's Value Chain concept to explore the *breadth* of supply chain integration and its implications for market orientation. Finally, Section 4.8 reflects on the empirical research supporting the hypothesis that market orientation has a positive impact on business performance and considers the use of supply chain configuration to leverage business performance through market orientation.

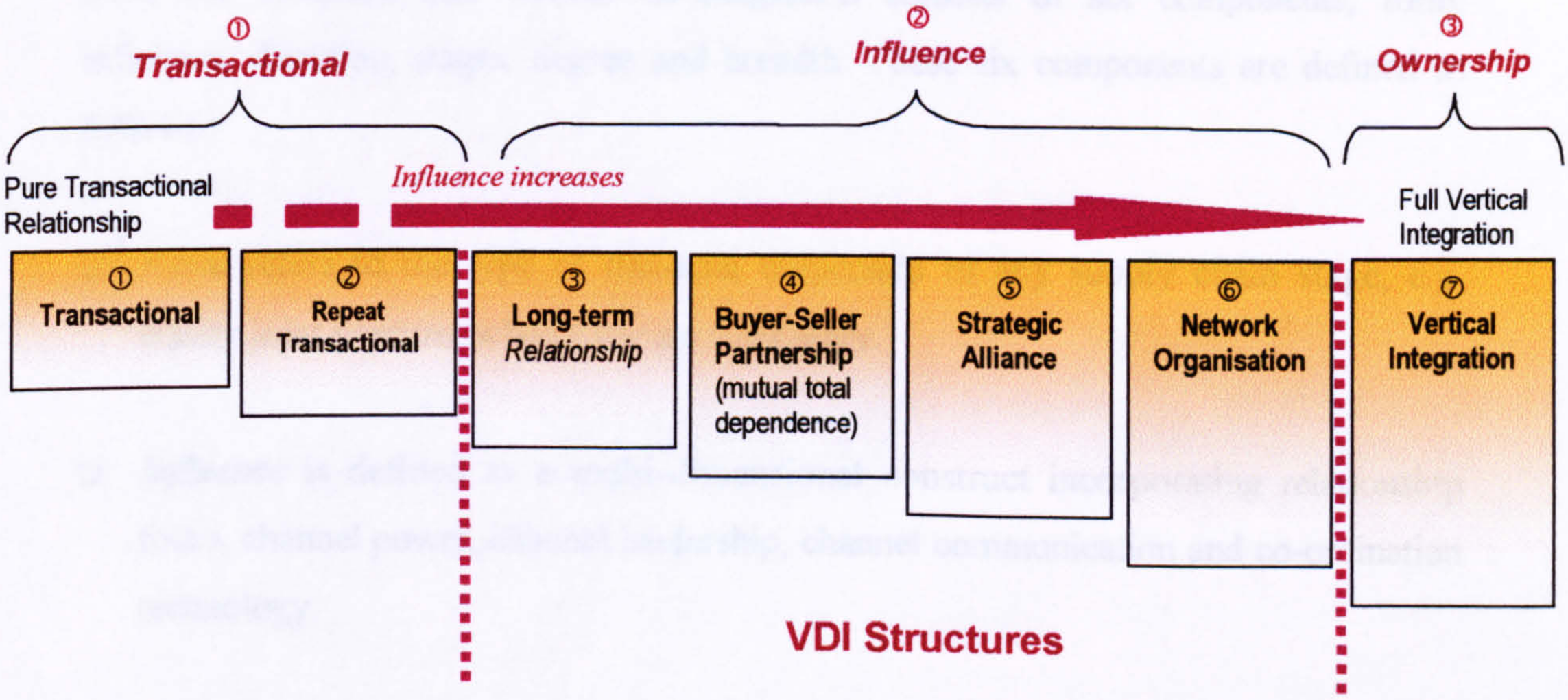
The theoretical framework presented here has been used to structure the data collection and analyses of the mini cases presented in Chapters 6 and statistics in Chapter 7.

4.1 Supply Chain Configuration as a Multidimensional Construct

Supply chain configurations have been given numerous definitions. Maddigan (1981), in keeping with many economists, defines the supply chain purely in terms of the financial ownership. Harrigan (1986) recognises the multidimensionality of financial ownership, identifying five dimensions of the construct: direction, stages, breadth, degree and form. But the rapid development in the availability, affordability

and versatility of co-ordination technology over the past decade has facilitated the de-integration of supply chains and is forcing both academics and practitioners to think about vertical integration in a different light (*c.f.* Earl & Khan, 2001; Porter, 2001). Can integration be achieved through other means than financial ownership – perhaps through the management of inter-firm relationships? Mahoney (1992) suggests that it can. The marketing literature emphasises the influential elements of integration through its focus on relationships (Grönroos, 1995). Discussion in the marketing literature revolves around the relationship continuum, with vertically de-integrated (VDI) forms utilising a combination of ownership and relationships strategies.

Figure 4.1 The Range of Inter-firm Relationships



Source: Adapted from Webster (1992, p.5)

Webster (1992) identifies seven forms of integration, which increase their level of ownership and/or relationship involvement as they move along the continuum from pure transactional relationships to full vertical integration.[49] Within this control continuum is a relationship continuum that constantly increases from pure transaction to repeat transaction, long-term relationship, buyer-seller partnership, strategic alliance and network organisations. However, the final point, full vertical integration, requires no inter-firm relationships as influence is achieved through complete

[49] For further discussion on the relationship continuum see Gummesson, 1994; Grönoos, 1997; Möller & Halinen, 2000

financial ownership. This continuum is central to our considerations of supply chain configuration and enables us to see clear distinctions between three principle approaches to supply chain configuration i.e. 1) transactional, 2) influence and 3) ownership (Figure 4.1).

Theoretical support for the multidimensionality of supply chain configuration may be derived from five major literature streams; transaction cost theory (Williamson, 1975), vertical integration (Harrigan, 1985a), the strategic view (Porter, 1980), the resource based view (Barney, 1991; Hunt, 1997), and relationship marketing (Grönoos, 1995). Finally, the advances in information technology must be acknowledged for their impact on supply chain configuration (Eppinger, 2001; Feeny, 2001; Porter, 2001). We infer from the literature that vertical de-integration consists of six components; form, influence, direction, stages, degree and breadth. These six components are defined as follows:

- *Form* refers to the type of financial ownership of any supply chain stage, e.g. equity joint venture, wholly owned subsidiary.

- *Influence* is defined as a multi-dimensional construct incorporating relationship focus, channel power, channel leadership, channel communication and co-ordination technology.

- *Direction* refers to the positioning of control or ownership and identification of these phenomena upstream (towards the supplier) or downstream (towards the customer) of the supply chain.

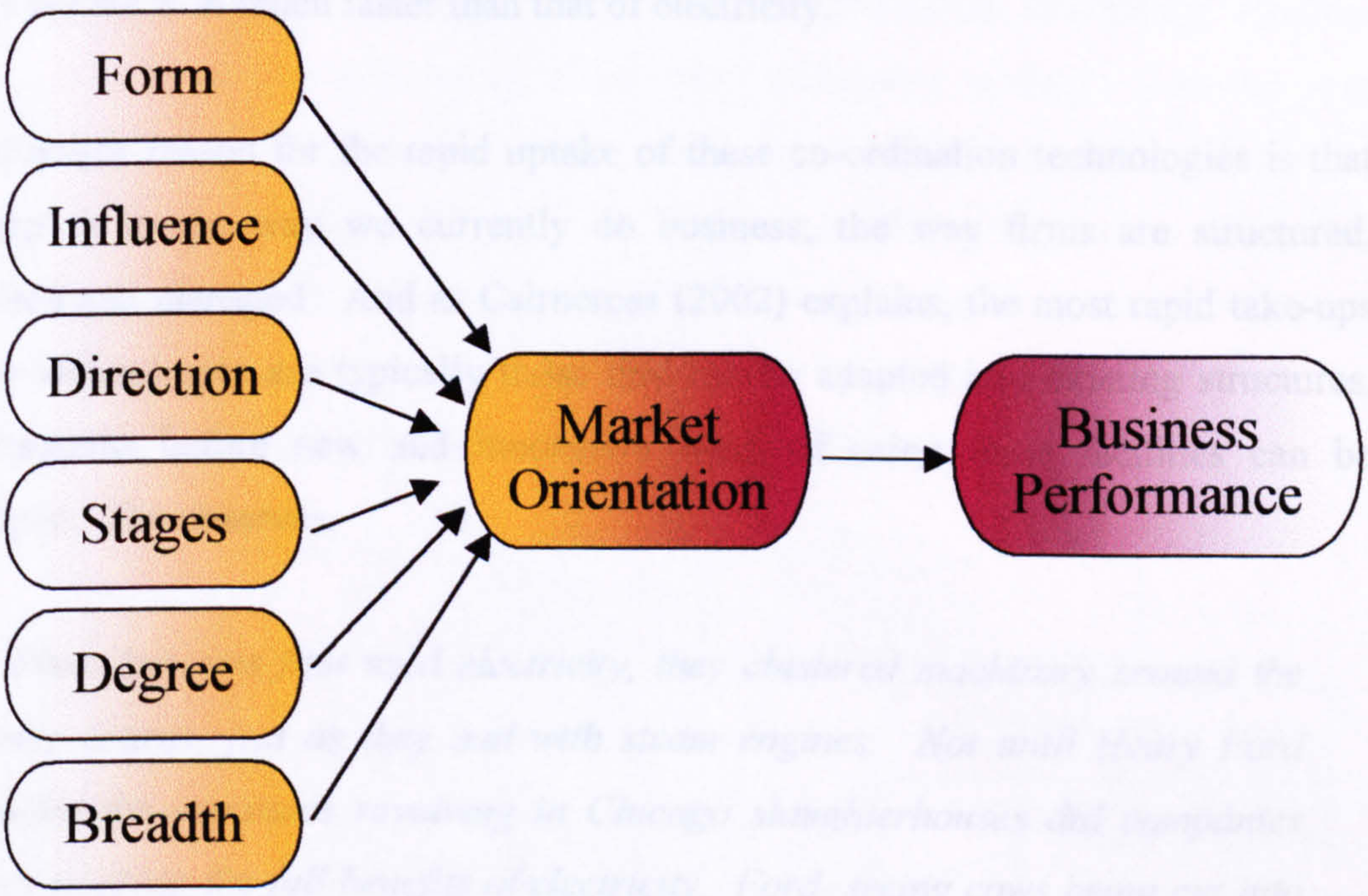
- *Stages* refer to the control or ownership of supply chain functions i.e. manufacture, assembly, wholesale, distribution and retail.

- *Degree* of integration determines the proportion of total output (of a particular component or service) that a Strategic Business Unit (SBU) purchases from (or sells to) its sister SBUs.

- *Breadth* refers to the control or ownership of value chain activities e.g. inbound logistics, operations, marketing and sales.

The theorised relationships between each of the above dimensions are also drawn from this literature. Further, the market orientation literature offered useful insights into these possible relationships and additionally into the widely tested market orientation-business performance relationship. These considerations resulted in the proposition of the six theorised dimensions of supply chain configuration as determinants of market orientation and business performance.

Figure 4.2 The Dimensions of Supply Chain Configuration as Determinants of Market Orientation and Business Performance



Supply chain configuration was thought to provide leverage for the market orientation. Modelling market orientation in this fashion suggested a structural-equation modelling approach but it was thought unlikely that the criterion of such an approach could be easily met.[50] This, by implication, imposed limitations on the possibility for testing for the moderating or mediating effect of market orientation on the supply chain configuration-business performance relationship. Consequently this

[50] For a more detailed discussion on how the framework was developed in conjunction with methodological considerations see Chapter 5.

framework was developed as a guide to how the relationships between these three important phenomena might be explored and understood.

4.1.1 The Impact of Information Technology

Chapter 1 (Section 1.2.3), introduced the *information age* as the context within which today's supply chain must be configured. Whilst it is true to say that the short-term impact of the emergent information technologies, and more specifically the Internet, have been exaggerated, it is probably also true that likely long-term effects of such technology have been equally underestimated. Cairncross (2002), charts the rapid adoption of the Internet and its related technologies over the past decade, observing that its uptake is so much faster than that of electricity.[51]

The principle reason for the rapid uptake of these co-ordination technologies is that they tap in to the way we currently do business; the way firms are structured, organised and managed. And as Cairncross (2002) explains, the most rapid take-ups of new technologies are typically those that can be adapted into existing structures. This happens before new and innovative ways of using these facilities can be developed. She observes,

> *" When factories first used electricity, they clustered machinery around the power source, just as they had with steam engines. Not until Henry Ford spotted the carcasses revolving in Chicago slaughterhouses did companies start to grasp the full benefits of electricity. Ford, seeing cows being cut into pieces, realised that he could apply the same principle in reverse: start with small pieces and build them into a complete automobile. Once he had imaginatively leapt from fixed to moving production lines in 1913, others began to understand the value of taking power to the process. Only then did companies begin to develop the techniques of cheap mass production that transformed manufacturing productivity in the twentieth century."* (p.3)

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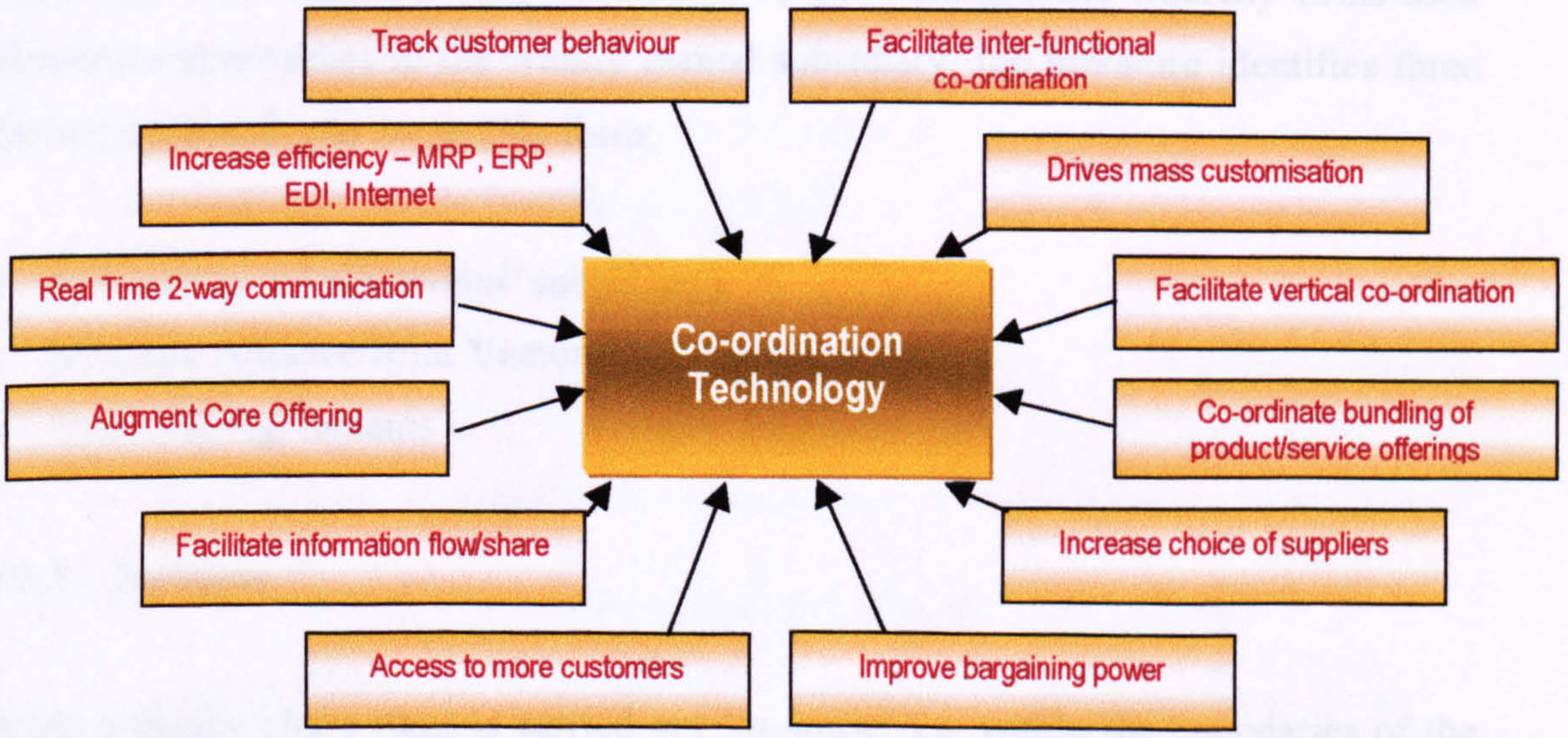
[51] *"Some engineers spotted as early as the 1880's that machines fitted with electric motors no longer had to be sited near a coal field or a stream for power, or in rows within a plant. But that was more than thirty years before Henry Ford's revolutionary development of the automated production line."* (Cairncross, 2002, p.3). Also see Goodman (1957) for a mid-century view of the long-term impact of automation.

Internet applications are still new and emerging phenomena. We have not yet grasped, imagined or understood their potential. However, not everybody views the Internet as a positive development (Chapter 2, Section 2.1.4). But as Porter (2001) observes,

> *"The key question is not whether to deploy Internet technology – companies have no choice if they want to stay competitive – but how to deploy them."* (p.64)

Porter (2001) purports that these technologies have a detrimental effect on industry structures but also recognises that for both the individual business units and their supply chains there are advantages. He believes that Internet technology provides better opportunities for companies to establish distinctive strategic positions than previous generations of information technology ever did. The principle advantages are outlined in Figure 4.3 below (also see Section 4.3). They suggest the need to re-think hierarchical and vertical firm and supply chain structures.

Figure 4.3 The Benefits of Co-ordination Technology[52]



Building effective and efficient networks of supply chain activities, regardless of where their financial ownership lies, creates new opportunities to develop added

[52] Materials Requirement Planning, (MRP); Enterprise Resource Planning (ERP); Electronic Data Interchange (EDI).

value. Two-way communications throughout the supply chain facilitate information gathering and sharing that can be oriented around customer expectations and core competencies, whatever they are and wherever they reside. An imaginative leap forward in supply chain configuration is inevitably linked with technologies. As Porter (2001) explains, this Internet architecture, together with the improvements in software and development tools, has turned co-ordination technology into a powerful strategic tool. By providing a common IT delivery platform across the value chain, Internet architecture makes it possible to build truly integrated and customised systems that reinforce the fit amongst supply chain and value chain activities.

4.2 Supply Chain Configuration: Form

We define *Form* as the type of financial ownership of any supply chain stage, e.g. equity joint venture, wholly owned subsidiary. This definition of ownership form is very much in keeping with that of Harrigan (1986),

> *"...how much equity to hold in each vertically related business unit."* (p.535)

Stemming from Blois's (1972) conception of quasi integration, whereby firms seek alternative approaches to the wholly owned subsidiary, the literature identifies three distinct approaches to ownership form;

- In-house (a *'wholly owned'* subsidiary)
- Strategic Alliance/Joint Venture
- Franchise Agreements

4.2.1 In-house

When a supply chain stage is carried out *'in-house'* i.e. within the boundaries of the firm, it usually means that the firm wholly owns the supply chain stage. This interpretation, referred to in the literature as vertical financial ownership (*c.f.* Mahoney, 1992), fits in with the traditional definition of vertical integration whereby market exchange is eliminated and replaced by internal transfers within the

boundaries of the firm (see Chapter 2, Section 2.1.3). Blois (1972) summaries the frequently cited advantages of vertical financial ownership, including:

- Decreased marketing expenses
- Stability of operations
- Certainty of supplies of materials and services
- Better control over product distribution
- Tighter quality control
- Prompt revision of production and distribution policies
- Better inventory control
- Additional profit margins or ability to change/lower prices on final products.

As can be seen from this list, over half of the points made suggest that control is an important advantage for a firm, and further that ownership of a supply chain stage increases control. Many authors promote the contingent nature of vertical integration, suggesting it to be dependent on industry sector, demand uncertainty, volatility of competition, product traits, supplier traits, bargaining power, corporate strategy needs etc. (Blois, 1972; Harrigan, 1984; Mahoney, 1992). Having said that, the increased control offered by carrying out a function in-house is widely thought to be beneficial. Therefore, whilst Penrose (1959)[53] argued that integration need not require a single legal identity, i.e. inter-firm relationships are just as capable of forming an integrated supply chain as financial ownership is, we propose that:

P_1: Integration can be achieved through ownership.

The contingent nature of vertical financial ownership implies disadvantages with such a strategy. Again Blois (1972) summarises these:

- Disparities between productive capacities at various stages of production

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[53] We return to the considerations of a definition of the firm (also see Chapter 2, Section 2.1.2). Penrose (1959) in addressing this issue, states that,

> *"The concept of the firm... does not depend on the ramifications of stock ownership or the mere existence of the power to control, although extensive stock ownership may, and probably should be one important consideration in any attempt to apply it. On the other hand, long-term contracts, leases and patent license agreements may give an equally effective control."* (Penrose, 1959, p20-21).

And later, she states,

> *"It* [a firm which is a subsidiary because of stock ownership] *should not be classed as part of the larger firm* [the parent company] *if it appears to operate independently of the managerial plans and administrative arrangements of the larger firm, for in this case any influence the larger firm exerts should be viewed as an extension of economic power and not as an extension of the co-ordinated planning of the productive activity.* (Penrose, 1959, p21).

- Public opinion and governmental pressure
- Lack of specialisation
- Inflexibility of operations
- Extension of the management team
- Lack of direction competitive pressures on the cost of intermediate products

This suggests that firms should seek alternatives to full vertical financial ownership that might allow them to retain the advantages created through ownership but avoid the disadvantages.

4.2.2 Strategic Alliances/Joint Ventures

Strategic alliances can be defined as the collaborations amongst partners involving the commitment of capital and management resources with the objective of enhancing the partners' competitive positions (Webster, 1992). Devlin & Bleakley (1988) emphasise the importance of long-term strategic goals in their definition of strategic alliances,

> *"Strategic alliances take place in the context of the company's long-term strategic plan and seek to improve or dramatically change a company's competitive position."* (p.18)

This definition alludes to the project based nature of strategic alliances, e.g. the development of new technologies, new products and new materials; or new ventures between suppliers and manufacturers to ensure the smooth flow of raw materials and components. Strategic alliances are sometimes formed between potential competitors in order to co-operate in the development of related or convergent technologies (Webster, 1992; Griffith, Zeybek & O'Brien, 2001; Rindfleisch & Moorman, 2001). Though hierarchical in nature like the *'wholly owned'* approach to vertical integration (Section 4.2.1), strategic alliances have a finite life. This creates an inherent flexibility that is forgone when the supply chain stage is wholly owned while still maintaining the higher levels of control associated with ownership. In other words:

P_2: Ownership downstream provides increased control over market oriented behaviour.

A joint venture is simply one form of strategic alliance. The unique feature of a joint venture is that a new firm is created. In addition to the sharing of resources associated with other forms of strategic alliance, the joint venture has its own capital structure. However, this means that the joint venture must also face the difficulties typically associated with a wholly owned firm; creating multiple partnerships and alliances and determining its core competence and its unique positioning in the value chain between suppliers and customers (Webster, 1992; Dyer, Kale & Singh, 2001).

One of our research companies was a joint venture company. Silicon Systems set up their operations to maximise their technological innovations in gyros and reach a wide market base. This joint venture (between a UK based and Japanese based company) spread the risk required due to asset specificity whilst at the same time increasing their access to potential markets and thus enabling their entrance into the market to be as a global player. Interviewees argued that this approach was essential in this '*high risk*' market, having created a highly adaptable product the joint venture then had to satisfy numerous markets as diverse as wheelchair and car manufacturers. As Webster (1992) observes, the definition of strategic alliances, with its emphasis on improving a firm's competitive position, supports the notion that they are important marketing phenomena.

4.2.3 Franchise Agreements

Franchise agreements, in common with strategic alliances, are associated with part financial ownership of supply chain stages. This gives the firm a greater degree of control over what are often customer facing functions. For example, Clarks shoes form franchise agreements with many of their retail outlets. Managers claim the control this gives them over marketing and pricing is crucial, whilst the asset burden is carried by the Franchisee. Empirical research into the various dimensions of inter-firm relationships have often drawn on franchisee/franchiser relationships (e.g. Schul, Pride & Little, 1983; Gaski & Nevin, 1985; Dahlstrom, & Nygaard, 1999) in order to understand the influence created by one partner over another in part-ownership relationships.

Influence is defined as relationship focus, channel leadership, channel communication, channel power and co-ordination technology. This concept draws principally on the relationship marketing literature, which suggests that the dynamics of inter-firm relationships can create influence between partnering firms. Relationship marketing is a concept that encompasses relational contracting (MacNeil, 1980), working partnerships (Anderson & Narus, 1990), symbiotic marketing (Varadarajan & Rajaratnam, 1986) and internal marketing (Berry & Parasuraman, 1991). Webster (1992) suggests that these aspects of relationship marketing recognise a fundamental reshaping of the field because of the developing *'network paradigm'*. The network paradigm recognises that competition occurs increasingly between networks of firms (Thorelli, 1986). One of the key drivers of the last decade has been the Internet and information technology, which has increased the potential for utilisation of the free flow of information across firms and networks (Craig & Douglas, 2000; Feeny, 2001; Hughes & Kao, 2001). Sawhney & Parikh (2001) conclude,

> *"the digitisation of information, combined with the advances in computing and communications, has fundamentally changed how all networks operate, human as well as technological, and that change is having profound consequences for the way work is done and value is created throughout the economy."* (p.80)

Achrol (1991) forecasts a rise in this type of organisation. He envisages networks of functionally specialised organisations, whose inter-firm relationships, being norm driven are,

> *"...held together and co-ordinated by market driven focal organisations"* (Achrol, 1991, p.78) by means of, *"norms of sharing, and commitment based on trust."* (p.89)

Morgan & Hunt (1994) consider commitment and trust to be key to inter-firm relationships for three primary reasons: 1) there is an incentive to work at preserving relationship investments by co-operating with exchange partners; 2) to resist attractive

short-term alternatives in favour of the expected long-term benefits of staying with an existing partner and 3) to view potentially high-risk actions as being prudent because of the belief that their partners will not act opportunistically. There is a growing body of theoretical and empirical evidence to suggest that trust, commitment and co-operation are important components of successful inter-firm relationships (*c.f.* Anderson & Weitz, 1992; Moorman, Deshpande & Zaltman, 1993; Ganesan, 1994; Siguaw, Simpson & Baker, 1998; Urban, Sultan Qualls, 2000) and as such should be considered as dimensions of an inter-firm relationship. We therefore propose that the focal point of an inter-firm relationship (what we label *'relationship focus'*) is achieved,

P_3: Through the development of trust within inter-firm relationships.

P_4: Through the development of commitment

P_5: Through the development of co-operation

The literature reveals just how complex inter-firm relationships are and relationship focus must be considered as just a part of a multi-dimensional structure. Another dimension frequently referred to in the marketing literature (particularly in the 1970's) is channel leadership (El-Ansary & Robineaux, 1974; Little, 1970; Stern, 1967). Channel leadership is defined as the activities carried out by a supply chain stage in order to influence the strategies of other supply chain members with the objective of controlling various aspects of channel operations (Schul, Pride & Little, 1983, p.22). Whilst some authors suggest that channel leadership impedes another channel member's marketing polices and may create channel conflict (e.g. Rosenberg & Stern, 1971), several of our interviewees suggested that channel leadership was *'gratefully received'* by downstream supply chain members. For example, Finelist (manufacturer and distributor of car components) used channel leadership to help their downstream motor factor manage inventory more efficiently and offer their customers a better service and more information on product offerings.

The factor thought most likely to affect the successful implementation of channel leadership is leadership style. Leadership style focuses on the actual leader behaviour, what the leader does and how it is done (Katz & Kahn, 1953; Stogdill & Coon 1957). Empirical evidence supports the existence of different leadership styles, i.e. supportive, participative and directive.

A *supportive* leader considers subordinates' needs, displays concern for subordinates' well being and creates a friendly and pleasant task environment (Ivancevich, Szilagyi & Wallace, 1977). A *participative* leadership style means the leader consults with subordinates, solicits their suggestions and considers these suggestions before making a decision (House & Mitchell, 1974). Collaboration between supply chain stages appears conducive to co-operation (El-Ansary & Robicheaux, 1974). Finally, *directive* leadership assumes the organisation and definition of the task environment. A directive leader assigns the necessary function to be performed, establishes communication networks and evaluates work group performance (Ivancevich, Szilagyi & Wallace, 1977).

Through their research into the effect of these three leadership styles on intra-channel conflict, Schul *et al.* (1983) conclude that to ensure the success of the leadership style implemented the firm taking channel leadership must orchestrate an effective leadership climate (*c.f.* Meyer & Collier, 2001). In other words it is necessary to adjust the channel environment to fit the need and predisposition of supply chain partners. Christensen, Raynor & Verlinden (2001) claim that those who show leadership by controlling the interdependent links in a value chain capture the most profit. The evidence overall suggests that channel leadership is an important component of inter-firm relationships. Therefore, we propose that a successful inter-firm relationship must include:

P_6: Strong channel leadership

In their discussion on directive leadership, Ivancevich, *et al.* (1977) highlight the importance of channel communication. Channel communication is said to be central to the effectiveness of inter-firm relationships (Mohr & Nevin, 1990; Stern & El-Ansary, 1992; Sawhney & Parikh, 2001). Indeed, channel communication has been linked to trust (Anderson & Narus, 1990), commitment (Anderson & Weitz, 1992; Morgan & Hunt, 1994), co-operation (Anderson & Narus, 1990) and power and influence strategies (Boyle, Dwyer, Robicheaux & Simpson, 1992; Munson, Rosenblatt & Rosenblatt, 1999). Mohr & Nevin (1990) describe communication as;

> *"...the glue that holds together the channels of distribution."* (p.36)

So as Mohr & Sohi (1995) observe, communication behaviours are clearly an important factor in the development of inter-firm relationships and the assessment of relationship quality.

Two streams can be identified within the channel communication literature. The first focuses on communication flows between firms and the second on evaluative/summary judgements of communication exchange. Research into the nature of communication flows typically examines factors such as the frequency of interaction, the extent to which communication flows are two-way,[54] or the level of formality of communication (e.g. Brown, 1981; Anderson, Lodish & Weitz, 1987) Research into the evaluative judgements of communication examine helpfulness, adequacy and efficiency (e.g. Guiltinan, Rejab & Rodgers, 1980; Bialaszewski & Gaillourakis, 1985; Anderson & Narus, 1990). Mohr & Sohi (1995) consider the multi-dimensional nature of communications and draw these streams together in their development of a measure for channel communications. They argue that these two streams are inextricably linked as,

> *"For example, the formality with which communication procedures are specified might impact the quality of information shared as well as the channel member's satisfaction with communications."* (p.394)

But it is the information sharing that communication allows, which was most widely commented upon by interviewees. Rolls-Royce, TWR, Lucas, Vickers all regularly make use of meetings, conference calls, teleconferences, e-mails, Extranets and the Internet with their first tier suppliers[55] to ensure the appropriate information is "*shared*". Closely allied with communications is the potential for knowledge transfer between supply chain stages (Griffith, Zeybek & O'Brien, 2001) and the opportunities for innovation (e.g. Hammer, 2001; Rindfleisch & Moorman, 2001; Sawhney, 2001).

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[54] Referred to in the literature as the *'bidirectionality'* of communication flows (e.g. Mohr & Sohi, 1995).

[55] Many of the firms that took part in our research employed some method of grading suppliers. First tier, or tier one suppliers are those that our firm held as their first choice. The relationships with these firms were highly developed and often adopted a collaborative nature.

These different aspects of channel communications suggest that a successful inter-firm relationship must include,

P_7: Good channel communications

Another proposed dimension of *Influence* is channel power. Power is conventionally defined in the behavioural science literature as the ability to evoke a change in another's behaviour. That is, the capability to get someone to do something they would not otherwise have done (*c.f.* Cartwright, 1965; Emerson, 1962; Munson, Rosenblatt & Rosenblatt, 1999). Gaski & Nevin (1983) highlight the difference between channel power and channel leadership, commenting,

> *"Note, especially that power is defined as an ability, a potential, rather than actual alteration of behaviour."* (Gaski & Nevin, 1983, p.130, original emphasis)

Unlike channel leadership, channel power[56] is associated with a coercive nature that appears in the power research (*c.f.* Hunt & Nevin, 1974; Lusch, 1976) and a firm's *ability* or *potential* to alter behaviour arising from competitive positioning, brand strength, or firm size.[57] Drawing heavily on the French & Raven (1959) framework, Gaski & Nevin (1983) interpret power in terms of its sources. They identify four sources of power, dividing these concepts dependent on whether the power was purely *perceived* by the trading partner or actually *exercised* and whether the power was implemented through *coercion* or a *reward* system. Their sources include:

- Perceived coercive power
- Perceived reward power
- Exercised coercive power
- Exercised reward power

Finally they examine a firm's ability to influence its trading partner i.e. a firm's ability to affect its partner's business. Their research into the effect of a supplier's

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[56] In the 1970's the control literature (see Walker & Shooshtari (1979) for a review of these studies) often used the terms *power* and *leadership* interchangeably. By the mid 1980's a deliberate attempt had been made to define and construct the two separate concepts in a more scientific manner (*c.f.* Gaski & Nevin, 1983; Schul, Pride & Little, 1985).

exercised and unexercised power on dealers suggests the application of punishment reduces a dealer's satisfaction and causes intra-channel conflict to a greater degree than merely the dealer's perception of the supplier's ability to impose punishments. Further, the granting of rewards increases the amount of power a supplier holds over the dealer.

The very fact that channel power enables a firm to influence its partner's behaviour suggests that a market orientated firm with channel power should be able to influence other supply chain members in a positive way (*c.f.* Bloom & Perry, 2001; Ailawadi, 2001). An important caveat here is that channel power must be applied in an appropriate manner i.e. through reward and not punishment. Despite this caveat we suggest that a successful inter-firm relationship must include:

P_8: Channel power

Gassenheimer, Sterling & Robicheaux (1996) associate knowledge with power. Companies in a strong competitive position are assumed to have good market and product knowledge (Borg, 2001; Davenport, Harris & Kohli, 2001) but this in itself is not enough. As we have seen in our discussion on channel communications, it is the timely sharing of accurate information that enables firms to conduct successful inter-firm relationships. The introduction of co-ordination technology has been an important facilitator of inter-firm communications and consequently of channel power and channel leadership. Interviewees from our researched companies commented,

> *"Without the use of technologies such as SAP it would be impossible for us to provide customers with what they want all of the time. Computers have allowed, for example, automatic re-ordering levels which make life so much easier and saves us money."* (Tesco)

> *"IT* [information technology] *has changed the way we do business and our relationships with our suppliers. We share so much more information nowadays. We're much closer..."* (TRW)

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[57] For further discussion on the effect of competitive positioning and firm size on inter-firm relationships see Blois (1972)

> *"Efficiency is the name of the game. We know what our customers want and when they want it. It's then about forecasting and eliminating potential waste. Computers mean we can be much much better at all this"*(Kellogg)

Munson, Rosenblatt & Rosenblatt (1999) explain how electronic data inter-change (EDI) has brought about improvements such as these. Firms have eliminated paperwork by transmitting standard business documents via EDI. They present the example of Northern Telecom who reportedly reduced their purchase order processing costs by as much as 47% as a result of EDI.

Hammer (2001), taking the example of Hewlett-Packard's (HP) computer monitor, not only illustrates the enormity of the impact of co-ordination technology on a supply chain's configuration but how this technology is inter-linked with other influence dimensions discussed in this section. HP outsource much of its manufacturing. These manufacturers buy the case for the monitor from an injection moulder, which acquires material used to make the case from a plastics compounder, which in turn buys the materials for the compound from a resin maker. Whilst easily described, until it was reconfigured this supply chain had proved almost impossible to manage. The suppliers at the opposite end of the supply chain to HP did not know how many monitors HP would need; they often did not know that HP was the ultimate destination for their resin or compound. Consequently, each had to carry high levels of inventory in case a HP order came up the chain. Frequently the inventory they did carry ended up being inappropriate. When this happened HP were unable to deliver when the customer needed, forcing the customer to go elsewhere. Disputes between upstream suppliers could also lead to unexpected delivery delays, disrupting order fulfilment by HP. This meant lost revenue for everyone in the supply chain.

On top of this was the volatility in order specification. When HP placed an order, its suppliers (in principle) should be ready to deliver. In reality the computer business means the average order for a batch of monitors changes four times before it is completed – usually in response to market demand.

As Hammer (2001) explains, the disparity in scale between the participants in the supply chain complicates matters further. HP and its resin supplier are giant

companies, as are the contract manufacturers, but the injection moulders are relatively small. Every order from HP was thus divided among many compounders, each buying resin in relatively small volumes – and consequently at relatively high prices. HP's potential bargaining power was thus dissipated. HP also lacked the ability to track their quality and delivery performance, prices and terms and rarely heard ideas for enhancing products or processes.

This supply chain incorporated a host of unrelated information systems. In 1999 HP resolved to integrate the entire supply chain and co-ordinated the unified process. The company assumed responsibility for ensuring that all parties work together, share information, and operate in a way that guarantees the lowest costs and highest levels of availability throughout the supply chain.

The hub of the newly integrated process is a network computer system that HP set up to share information among all participants. HP posts its demand forecasts and revisions for its partners to use in their own forecasting. The partners post their plans and schedules and use the system to communicate with their own suppliers and customers, exchange electronic orders, acknowledgements and invoices. HP's procurement staff manages the entire process, monitoring the performance of upstream suppliers, helping resolve disputes relating to payments and keeping supply and demand in balance. This integrated process has dramatically enhanced the performance of the supply chain. Now, any kind of change to an HP order ripples through the supply chain instantaneously, allowing everyone to react quickly. This type of supply chain co-ordination would simply not be possible without the use of co-ordination technology.

Co-ordination technology can be defined as the information technology that enables firms to share openly proprietary information. Berry (1995) identifies such technological advances as one of the principal influences on relationship marketing. The rapid advances in co-ordination technology are decreasing costs and increasing the practicality of inter-firm relationships. Berry (1995) identifies six key tasks that can be performed efficiently through the use of co-ordination technology:

- Tracking buying patterns and overall relationships of existing customers
- Customising services, promotions, and pricing to customers specific requirements
- Co-ordinating or integrating the delivery of multiple services/products to the same customer
- Providing two-way communications channels – company to customer, customer to company
- Minimising the probability of service/product breakdown and errors
- Augmenting core offering with valued extras

Whilst Berry's (1995) work primarily focuses on the service sector and specifically on a firm's relationships downstream – with its customers - he points out that we should not be slow in applying these principles to other sectors, quoting Morgan & Hunt (1994) to make his point,

> *"Relationship marketing refers to all marketing activities directed at establishing, developing and maintaining successful relational exchanges in ... supplier, lateral, buyer and internal partnerships"* (Morgan & Hunt, 1994, p.23.)

As we have seen, the advantages that co-ordination technology brings to inter-firm relationships, together with its close association with other theorised dimensions of influence create a powerful force for change within strategic partnerships. This leads us to propose that successful inter-firm relationships make good use of:

P_9: Co-ordination technology

In summary, we have suggested that Influence is a multi-dimensional construct consisting of relationship focus, channel leadership, channel communications, channel power and co-ordination technology. We conclude,

P_{10}: The lack of these components in a relationship marks a '*Transactional*' relationship.

P_{11}: Integration can be achieved through inter-firm relationships.

4.4 Supply Chain Configuration: Direction

Direction refers to the positioning of a firm within the supply chain and the consequent direction of integration; upstream (towards the supplier) or downstream (towards the customer). The direction of integration has important implications for the marketing concept. One of the principle components of market orientation is customer orientation (Narver & Slater, 1990). This suggests that downstream integration, whether it is achieved through ownership or influence, is an important supply chain consideration. Further, the positioning of the firm within the supply chain also has an impact of the type of integration likely to be most appropriate. The closer the firm is to the consumer or end-user, the greater the benefit of owning that supply chain stage. This, we suggest, is because of the increasing closeness to the customer. If a manufacturer of shoes wishes to increase its customer orientation, one way might be to integrate downstream into the retail stage of the supply chain. This way knowledge of customer preferences and purchasing patterns can be built (*c.f.* Kohli & Jaworski, 1990; Davenport, Harris & Kohli, 2001) and used to create added value in future customer offerings. Therefore, we propose that;

P_{12}: Integration downstream drives market orientation.

Conversely, the further upstream the firm is positioned, the harder it is likely to be to create added value and the less attractive ownership becomes. Therefore, a firm may look to vertically de-integrate upstream, so that it can concentrate its efforts on downstream activities associated with market-orientated behaviours. Vertical de-integration upstream need not mean a lack of integration upstream, as financial ownership of upstream stages may be replaced by long-term relationships (Blois, 1972; Mahoney, 1992; Möller & Halinen, 2000). However, in some circumstances, total de-integration may be an appropriate strategy upstream as firms purchasing commodities experience minimum transaction costs trading on the open market (Williamson, 1975). Therefore we propose that;

P_{13}: Non-ownership upstream does not negatively affect market orientation; and

P_{14}: Inter-firm relationships upstream can provide synergies that drive market orientation.

This point, concerning the upstream positioning of supply chain stages must be considered in the context of the resource-based view, i.e. what is the firm's core capability? How does the firm define itself in terms of what it does? (*c.f.* Barney, 1991). We do not mean to presume that manufacturers or raw material suppliers may not be successful businesses in their own right, rather that the value added and thus profit margins are likely to be smaller than downstream firms (*c.f.* Wise & Baumgartner, 1999). Finally, upstream firms should consider methods of downstream integration so that they may create value added through market orientated activities (*c.f.* Dobni & Luffman, 2000; Davenport, Harris & Kohli, 2001).

As we have seen, one method of downstream integration is through financial ownership. Ownership brings with it many advantages (decrease in marketing expenses, stability of operations, control over distribution and inventory). As Porter (1985) observes,

> *"The exploitation of vertical linkages does not require vertical integration* [vertical financial ownership], *but integration may sometimes allow the benefits of vertical linkages to be achieved more easily."* (p.56)

However, the positioning of a firm within the supply chain has bearing on the direction of integration. According to the market orientation literature, one of the most significant aspects of a firm's behaviour is its customer interface (Narver & Slater, 1990). This suggests that where firms are not positioned at the customer end of the supply chain[58] they will need to integrate downstream either through ownership or inter-firm relationships. Porter (1985) examines downstream integration through his discussions on buyer power[59]. He considers buyer concentration, buyer volume, buyer switching costs, buyer information and their ability for backward integration to be determinants of buyer power. According to our definition of *influence* within the supply chain, channel power should reside with the firm that possesses the objective of controlling that supply chain function. In other words, if integration cannot be achieved through influence because of the existence of buyer power then ownership downstream might be the most appropriate form of integration.

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[58], For example, the retailer Tesco.
[59] see Chapter 2, Figure 2.1, p.50.

Finally, Porter notes one further significant determinant of downstream integration. He suggests that ownership can create barriers to entry, preventing new entrants into the market place thus enabling a firm to create sustainable competitive advantage. Porter discusses the use of competitors as defenders of new market entrants, suggesting how competitors can become '*good*' competitors.[60] He comments,

> *"Competitors play a crucial role in deterring other entrants, or enhancing the stability of a firms competitive advantage. The right competitors can contribute to a defensive strategy."* (Porter, 1985, p.210)

In a more recent article, he also warns of the breaking down of these barriers through the damage fostered on industry structure by unwitting users of inappropriate Internet strategies (Porter, 2001).[61] Despite the reduction of bargaining power in this information environment, Porter holds that the principles of strategy remain the same. It may be necessary for a firm to take action in order to transform a bad competitor into a good one. Ideally market signalling to correct competitor's false assumptions is all that is necessary. Alternatively a firm might have to demonstrate its competitor's relative weakness or convince them that they will not tolerate erosion of their market position (Porter, 1985). Whether the competitor is good or bad, in common with the market orientation literature, Porter recognises the importance of competitor orientation. This combination of factors, concerning the direction and method of integration, together with the considerations of competitive forces leads us to propose that;

P_{15}: Ownership downstream provides barriers to entry which increases competitor orientation.

When firms do not pursue downstream integration strategies they are said to be participating in transactional relationships downstream. In a transactional relationship

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[60] Porter (1985) defines a good competitor as one that can perform the beneficial functional benefits of increasing the likelihood of intensity of retaliation, symbolise the difficulty of successful entry, block logical entry avenues and crowd distribution channels through branding. The good competitor performs these functions without representing too severe a long-term threat and challenges the firm not to be complacent but is a competitor with which the firm can achieve a stable and profitable industry equilibrium without protracted warfare. For a more detailed discussion on competitors see Porter (1985), pp.210-212.

[61] See Chapter 2, Section 2.1.4

all activity is conducted as a set of discrete, market-based transactions and virtually all necessary information is contained in the price of the product that is exchanged. The marketing job is simply to find buyers (Webster, 1992). But there are costs associated with adopting this price mechanism, searching the competitive market and negotiating relative prices and contracts. Coase (1937, p.390) referred to them as, *"the cost of using the price mechanism"*. For Coase (1937) the problem was to explain why, given these "*marketing cost*"[62] firms did not integrate (through financial ownership) all exchanges of value instead of depending on the competitive market. Coase proposed that this was because costs are also associated with internal performance of value-creation activities, including entrepreneurship and misallocation of resources to activities in which the firm is incapable of creating value to the same extent as a specialist. Webster (1992) notes that this suggestion, stated in Coase's 1937 article, is very similar to the notion of *"distinctive competency"* that appears in the strategy literature more than 50 years later (Prahalad & Hamel, 1990; Hamel & Prahalad, 1994). This suggests not that market transactions are inappropriate, but that they may benefit from the development of inter-firm relationships.

Whilst some industry commentators have suggested that the need for strong inter-firm relationships is declining with the increased adoption of the Internet, Porter (2001) points out that such technologies are intensifying competitive rivalry, shifting power towards the customer and thus away from businesses and industry sectors. He concludes,

> *"Over the long haul...we may well see many buyers back away from open marketplaces. They may once again focus on building close, proprietary relationships with fewer suppliers, using Internet technologies to gain efficiency improvements in various aspects of those relationships."* (p.70)

Barney (1991) develops the concept of the firm in his resource-based view, to encompass only those supply chain stages that add value to the firm's core capabilities. But the relationship marketing and market orientation literatures focus on the importance of forward or *customer facing* integration (e.g. Berry, 1995; Wise

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[62] '*Marketing costs*' became widely referred to as '*transaction costs*' following Williamson's (1975, 1985) seminal works.

& Baumgartner, 1999; Möller & Halinen, 2001). In common with Mahoney (1992), they do not distinguish between integration through ownership or influence (*c.f.* Frohlich & Westbrook, 2001; Pepall & Norman, 2001). The need for integration downstream is particularly prevalent in the marketing literature through its focus on marketing intelligence and competitor knowledge (Davenport, Harris & Kohli, 2001). As Kohli & Jaworski (1990) observe,

> *"The starting point of a market orientation is market intelligence.... market orientation includes monitoring factors such as government regulations and competition that influence the needs and preferences of their customers."* (p.4)

In a purely transactional relationship with downstream buyers, the opportunities for customer intelligence, if not competitor intelligence is likely to be limited as the firm looses the opportunity of an interface with the end user because of the supply chain configuration adopted. A long and de-integrated supply chain increases the opportunity for information to be distorted during upstream communications flows (Mohr & Sohi, 1990; Hammer, 2001). And even if information could survive distortion during its perilous journey upstream, market orientation is difficult to formalise. The existence of formal rules and regulation in an organisation and implementation of such rules have largely been found to be unsuccessful (Narver & Slater, 1991; Jaworski & Kohli, 1993; Davenport, Harris & Kohli, 2001). This leads us to suggest that,

P_{16}: Transactional relationships downstream weaken a firm's capability to implement market orientation.

Where firms do pursue downstream integration through non-ownership methods, the literature suggests a need for the careful management of inter-firm relationships. As we saw through our examination of the relationship marketing literature (Section 4.3) many researchers identify the need for co-ordination within inter-firm relationships (Anderson & Weitz, 1992; Ganesan, 1994; Siguaw, Simpson & Baker, 1998). And as one of several of our interviewees pointed out in the exploratory phase of this research, the development of strong and profitable inter-firm relationships requires a substantial resource commitment (*c.f.* Barney, 1991). In other words, there are high

transaction costs associated with inter-firm relationships (Williamson, 1975). And so, in the words of one interviewee, *"...we, must get them right"*. Finelist, (1999)

Getting relationships *right* was interpreted as achieving previously stated and tightly defined objectives. This entailed tight control and channel leadership from the firm that was endeavouring to position itself at the hub of the supply chain configuration. Webster (1992) calls this controlling firm the *'core firm'* and suggests that the firm builds a *'confederation'*, defined as;

> *"...a loose and flexible coalition guided from a hub where the key functions include the development and management of the alliances themselves, co-ordination of financial resources and technology, definition and management of core competence and strategy, developing relationships with customers and managing information resources that bind the network."* (p.9)

His point about this archetypal supply chain configuration is that it needs tight management (*c.f.* Hammer, 2001; Willcocks & Plant, 2001). This perspective, in conjunction with the market orientation perspective whereby the firm's focus must be clearly aimed towards the customer, competitor and inter-functional communication, leads us to suggest that,

P_{17}: Tight management of inter-firm relationships is vital when the method of integration downstream is not ownership.

4.5 Supply Chain Configuration: Stages

Stages refer to the control or ownership of supply chain functions i.e. manufacture, assembly, wholesale, distribution and retail. Harrigan (1984) observes that some supply chains (dependent on industry or product line) may have more activities than others. She suggests that firms do not always have to integrate adjacent stages, namely that firms may skip a stage in the chain (through outsourcing) in order to better monitor/manage costs, or to save on asset investment for facilities that would be under-utilised if brought in-house, or for other reasons. We saw an example of this at one of our pharmaceutical companies. They manufacture and pack cancer drugs,

but the jelly capsule that the drug is put into before it is packed is outsourced. This is because of the asset specificity associated with the *'tableting'* business. This highly regulated business requires high sterilisation standards and costly high-pressure specialist machinery.

The stage at which a firm is positioned within the supply chain is also dependent on that firm's history, their resources and where they have built their core capabilities. For example, Clarks Shoes were originally a shoe manufacturer, manufacturing 100% of their products in the UK. Today Clarks own many retail outlets, in which they sell their shoes, but they no longer manufacture *their shoes.* Rather the manufacturing process has been outsourced overseas where there is a much lower cost base. The stages they occupy within the supply chain have grown as they integrated financial ownership downstream and de-integrated financial ownership upstream. This also suggests how important the positioning of a firm within the supply chain might be to the direction and method of integration it pursues.

4.6 Supply Chain Configuration: Degree

Degree of integration determines the proportion of total output (of a particular component or service) a Strategic Business Unit (SBU) purchases from (or sells to) its sister SBUs. Harrigan (1985) draws a distinction between *'fully integrated'* and *'tapered'* SBUs. Fully integrated business units transfer 95% or more of their requirement for a particular resource in-house. Tapered integration requires firms purchase more than 5% of their requirements for that resource from outsiders (Crandall, 1968). As Harrigan (1985c) observes,

> *"The degree of internal transfers matters because economic studies have noted, the minimum efficient plant sizes upstream and downstream activities are rarely the same. Usually, the upstream plant's minimum efficient scale is larger than the downstream plants. Some proportion of the vertical chain is likely to be out of balance due to such differences of scale, so one SBU will either have to engage in transaction with outsiders or let its excess lie fallow."* (p.401)

Understanding the implications of the degree of integration is, therefore, likely to affect the supply chain configuration design.

4.7 Supply Chain Configuration: Breadth

Breadth refers to the control or ownership of value chain activities e.g. inbound logistics, operations, marketing and sales (*c.f.* Porter, 1985 p.36, 2001, p.75). Harrigan (1984) observes that firms that perform a wide spectrum of activities involved in making a particular product may enjoy synergies with their other businesses. Her findings suggest that being broadly integrated can offer opportunities to capture large profit margins by adding more value themselves. An example of this can be seen through Unilever's development of marketing expertise, which it applies across its various product/market sectors.

A broad integration can help firms to contain intelligence concerning component cost and put them in a position to streamline such costs (Champion, 2001; Hammer, 2001). It can also help to maintain product quality and protect intellectual property. Broad integration however, is not always appropriate. For example if a firm has low requirements for a particular good or service, then the function might be better outsourced so that fixed costs can become variable costs. Similarly, in other extreme situations, e.g. when an industry is growing and changing very quickly or is in fast decline, a narrowly integrated supply chain configuration may be more appropriate as this allows access to the innovation of outside suppliers or distributors and lowers exit barriers (Harrigan, 1984).

4.8 The Leverage of Business Performance

There are two concepts developed in the literature review that provide theoretical and empirical evidence to support the doctrine that they affect business performance; the first is market orientation and the second is supply chain configuration. We begin by re-examining each of these concepts in turn and its consequent relationship with business performance before exploring a possible three-way relationship between the concepts. Finally we propose a taxonomy of supply chain configurations that may be

linked to market orientation and business performance so that we may better understand the proposed inter-relationships.

4.8.1 Market Orientation & Business Performance

Chapter 2 (Section 2.1.1) identifies some of the empirical research that has linked market orientation with business performance. (e.g. Narver & Slater, 1990; Greenley, 1995a; Pitt, Cruana & Berthon, 1996; Siguaw, Simpson & Baker, 1998; Sin *et al.*, 2000). The majority of these studies interpret and measure business performance in terms of financial performance. For example Narver & Slater (1990) use a single measure of business performance – Return on Assets (ROA). Siguaw, Simpson & Baker (1998), whilst using multiple measures of business performance (including cash flow, gross profit margin, net profit from operations, return on investment), still only interpret business performance from the financial perspective. Rappaport (1981) persuasively argues that total shareholder return is the most appropriate measure of performance but its application at business unit level is problematic. This probably accounts for its limited uptake in the market orientation literature. Despite this limitation, all these studies provide results suggesting that market orientation has a positive effect on business performance

Fawcett & Cooper (1998) recall the old cliché, *"If you can't measure it you can't manage it."* for the very reason that it represents an inescapable management reality. Recognising how the increasingly competitive business environment is making new and escalating demands that require a strong focus on such issues as product and process quality, customer satisfaction and cross-functional integration, Henkoff (1994) observes a '*realisation*' amongst companies that,

> *"...in today's marketplace it is no longer company vs. company but supply chain vs. supply chain."* (Henkoff, 1994, p.64)

And as Fawcett & Cooper (1998) acknowledge, this has brought performance measurement to the forefront of managerial attention. They explain,

"The ever increasing complexity of supply chain systems puts additional pressure on measurement activities to co-ordinate and control integrated channels. Fortunately, the redesign of performance measurement systems to provide accurate, relevant and timely information needed to manage entire supply chains has been made feasible by improvements in information technology such as bar-coding, electronic data interchange, integrated databases and satellite communications." (Fawcett & Cooper, 1998, p.343)

Kaplan & Norton (1992) suggest an alternative approach to business performance measures through, what they label a *'balanced scorecard'*. Starting from the premise that, *"what you measure is what you get"* (Kaplan & Norton, 1992, p.71) they acknowledge that no single measure can provide a clear performance target or focus attention on the critical areas of business. They devise the balanced scorecard to include financial measures (to provide results of action already taken) and operations measures (for customer satisfaction, internal processes and the organisation's innovation and improvement activities). Operational measures are defined as the drivers of future financial performance.

It would perhaps be interesting to see how market orientation performed against the criteria associated with this wider definition of business performance. The balanced scorecard focuses the performance emphasis and thus the objectives of the firm on the short, medium and long-term, and not purely on the short-term performance associated with financial performance criteria. Further, this wider focus might improve our understanding of how the different dimensions of market orientation benefit an organisation (*c.f.* Greenley, 1995b; Schlegelmilch & Ram, 2000).

4.8.2 Supply Chain Configuration & Business Performance

The second concept - supply chain configuration - has been addressed in many disparate forms in the literature. For example, D'Aveni & Ravenscraft (1994) define supply chain configuration in terms of vertical financial ownership of supply chain stages; Brodie *et al.* (1997) define it in terms of inter-firm relationships; Thorelli (1996) as networks; Johnston & Lawrence (1988) in terms of value-adding partnerships.

These various supply chain configurations have been associated with different performance outcomes dependent on the business environment when they were carried out and the researcher's definition of supply chain configuration. Rumelt (1974, 1982) found vertically integrated firms to be the poorest performers of all the diversification types in his sample. D'Aveni & Ilinitch (1992) found that vertically integrated firms had a higher risk of bankruptcy in the forest products sector. However, other studies, based on a contingency approach to supply chain configuration, have identified substantial incentive for firms to vertically integrate (*c.f.* Harrigan, 1985c, 1986; Mahoney, 1992). Consequently a synthesis of this research is needed. First, a clearly defined set of supply chain configurations needs to be identified and second, these supply chain configurations need to be examined for their relationship with business performance criteria.

The vertical integration literature tends to be broader in its definition of business performance. For example, researchers have associated supply chain configuration with cost reduction, the protection of proprietary technology (Jones & Hill, 1988) and the creation of barriers to entry (Salop & Scheffman, 1983). These outcomes have to be considered in conjunction with the developments that have occurred within supply chains over the past three decades (*c.f.* Hammer, 2001; Porter, 2001). Fawcett & Cooper (1998) identify five principle developments that have resulted in new supply chain configuration typologies; just-in-time management practices, an emphasis on internal integration and process management, the adoption of integrated supply chain strategies, the establishment of global operating networks and the greater recognition of customer needs (*c.f.* Champion, 2001; Sawhney, 2001). But to date, no clear identification of supply chain configuration typologies exists.

4.8.3 A Supply Chain Configuration Taxonomy

Taking Webster's (1992) interpretation of the three distinct approaches to the supply chain (transactional, influence and ownership) and merging this with Harrigan's (1985c) interpretation of the direction and positioning of integration within the supply chain, it is possible to develop a taxonomy of supply chain configuration typologies. Figure 4.4 illustrates the merging of these two interpretations of the supply chain and identifies nine supply chain configurations. Each of the possible supply chain

configurations generated through the taxonomy was labelled according to the type of firm thought most likely to adopt that configuration.

The *transactional model*, with transactional relationships both upstream and downstream, was thought likely to be associated with firms pursuing short-term financial performance objectives. The *sales-led supply chain*, with transactional relationships upstream and influence relationships downstream, was thought likely to be based on the old sales orientation model whereby firms focus on what the customer wants and search the market place for the nearest, most cost effective match to customer needs. The *retail model*, with transactional relationships upstream and ownership downstream was thought most likely to be adopted by retailers, whereby their positioning within the supply chain provided them with in-depth customer knowledge. This was then to be matched with market place offerings in a similar manner to that suggested by the sales led supply chain.

The *Agent model*, with influence upstream and transactional relationships downstream, was thought likely to appear where firms had low asset specificity and low fixed costs. Firms that acted as agents for plant machinery manufacturers, furniture manufacturers or even car manufacturers might adopt this model.

Figure 4.4 A Taxonomy of Supply Chain Configuration Typologies

DOWNSTREAM \ UPSTREAM	*Transactional*	*Influence*	*Ownership*
Transactional	The Transactional Model	Agent Model	Production-Led
Influence	Sales-Led	The Influence Model	Industry Shifter
Ownership	Retail Model	The Franchise Model	The VI Model

Note: the supply chain configuration labelled in red where found amongst our forty cases. The supply chain configurations labelled in grey were not. The labels attributed at this stage did not always fit the description of the firms that adopted the said supply chain configuration within the case analysis (see Chapter 6).

The *Influence model,* with influence relationships upstream and downstream, came the closest in definition to what the literature labels the network or m-form supply chain. This was thought most likely to be adopted by high tech firms with low asset specificity and a high degree of application for their products/services requiring a multi-channel approach to market. It was thought likely that new firms would not have the constraints of a manufacturing history or particular way of structuring their supply chain and would be more likely to adopt this supply chain configuration.

The *Franchise model,* whereby firms adopted influence relationships upstream and ownership (or part ownership) downstream, was thought a likely option for de-integrating manufacturers. They would seek control downstream to enable them to achieve a better market orientation but did not feel that particular routes to market were part of their core business.

The *Production-Led model,* whereby firms adopted ownership strategies upstream and a transactional approach to downstream stages, thought most likely to be associated with traditional manufacturers whose focus was on technological development. This model represents the potential misapplication of the resource-based view – firms manufacturing what was technically feasible but what was not necessarily what the customer wanted. The lack of integration downstream made failure a strong possibility for a firm adopting this supply chain configuration.

The *Industry Shifter model,* whereby firms positioned upstream of the supply chain had ownership of upstream stages but use influence downstream in distribution channels. Thought most likely to be adopted by innovative manufacturers with a high market orientation.

The *VI model*[63], whereby firms adopted ownership upstream and downstream of the supply chain, fits with the traditional interpretation of what an integrated supply chain is and how it might allow maximum control over the business. This model is thought rare because of the widely reported de-integration of supply chains, including Webster's (1992) example of the Ford Motor Company cited in this thesis (p.44).

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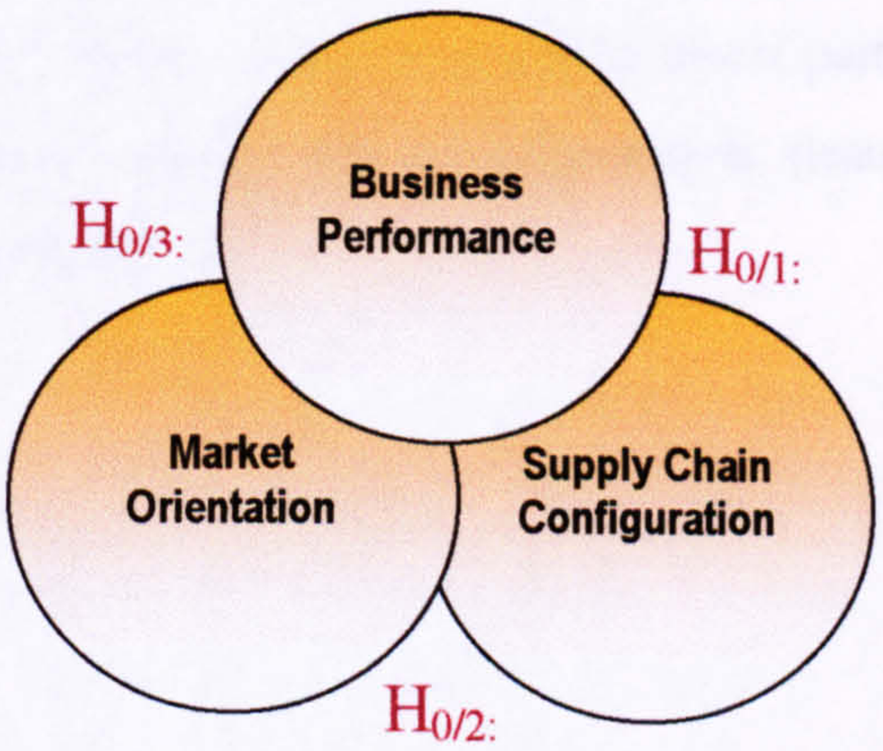
[63] Vertically Integrated

Having identified nine possible supply chain configurations we now examine each for its association with market orientation and business performance levels. Further, it might be possible to identify a three-way relationship between the concepts.

4.8.4 A Three-way Relationship

Some connections between market orientation and supply chain configuration have been fleetingly referred to in the literature (e.g. Ruekert, 1992; Hammer, 2001). Indeed, some researchers have tried to incorporate structure or, what has sometimes been referred to as '*organisational systems*' as antecedents of market orientation whilst still modelling business performance as an outcome (Jaworski & Kohli, 1993). This suggests a three-way relationship between supply chain configuration, market orientation and business performance, yet there is no theoretical or empirical evidence to directly associate certain types of supply chain configuration with improved market orientation and business performance.

Figure 4.5 The three key hypothesised relationships are represented through the three possible relationships between supply chain configuration, market orientation and business performance.



If it is possible to identify firms adopting the supply chain configurations proposed through our taxonomy (Figure 4.5), then it should also be possible to investigate the levels of market orientation and business performance associated with each configuration type. To this end we develop three key hypotheses:

$H_{0/1}$: There will be no significant difference between high and low performance firms in the supply chain configuration adopted.

$H_{0/2}$: There will be no significant difference between the supply chain configuration adopted and the level of market orientation achieved.

$H_{0/3}$: Business performance will not be significantly influenced by market orientation.

4.9 Final Comments

We have presented a theoretical framework identifying the dimensions of supply chain configuration and market orientation and their theorised inter-relationships. In turn we have considered the implications of both these concepts for business performance. In so doing, different theoretical approaches were applied in order to explain the rationale behind the suggested relationships. Experiences from UK based firms were used to highlight key elements of the framework.

It is important to emphasise that this framework is oriented toward the study of supply chain stages. Thus it allows us to identify principle areas for strategic consideration. In particular it facilitates the consideration of competitive dynamics, market development and technology development as elements in the strategic decisions demanded of firms. Following an explanation of the thesis methodology (Chapter 5) the mini cases studied in Chapter 6 aim to constitute select particulars, which bring to life hidden determinants of supply chain configuration strategy considered under-explored by existing approaches.

CHAPTER 5

Methodology

Introduction

This chapter sets out to evaluate the alternative research methods used in business studies research and identifies the reasons for the selection of the triangulated methodology adopted in this adapted case study design. We begin by defining and describing these different approaches, including an explanation and evaluation of the various data collection techniques.

Our purpose is not to enter into a debate regarding the appropriateness of qualitative or quantitative[64] approaches but rather to explain how, after defining the research problem, both survey and case study design were evaluated as possible research methods. Finally we identify our reasoning for the selection of a triangulated design for this project.

5.1 Research Method Typologies

Each research strategy represents a different way of collecting and analysing empirical evidence. The research designs identified below are all associated with social science research and with business studies research in particular. These research methods should be viewed as real alternatives for all stages of the research project: the exploratory, descriptive and explanatory stages. This is an important consideration and it should be noted that the various method typologies are considered more or less appropriate dependent on the research stage. For example, it is argued that case studies are good for exploratory phase, surveys and histories are useful for the descriptive phase and experiments are appropriate for establishing causal links (*c.f.* Churchill, 1995).

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[64] For further detailed discussion on the pros and cons of qualitative and quantitative research approaches see the special issue of Administrative Science Quarterly, Vol.24, No.4, 1979.

However, Yin (1989) suggests that this hierarchical view is incorrect. He identifies three key conditions that appropriate one approach over the other:

i) The type of research question posed,

ii) The extent of control an investigator has over behavioural events, and

iii) The degree of focus on contemporary as opposed to historical events.

Based on these characteristics, Yin (1989) draws distinction between experiments, surveys, history and case studies (see table 5.1).

Table 5.1 Relevant elements for different research strategies

Method	*Form of Research Question*	*Requires control over behavioural events?*	*Focuses on contemporary events?*
Experiment	How, Why	Yes	Yes
Survey	Who, What, Where, How many, How Much	No	Yes
Case Study	How, Why	No	Yes
History	How, Why	No	No

Source: taken from Yin R (1989) "Case Study Research", Revised Edition. Sage Publications Inc. p.17

One further method identified in the literature is that of action research, whereby the researcher becomes actively involved within an organisation or firm in order to problem solve. Each of the aforementioned research approaches will now be discussed in a little more detail.

5.1.1 Experimental Research

Experimental research is generally used when the objective of the research is to determine the specific impact of a small number of independent variables on the dependent variable. Its most significant characteristic is that there is a controlled environment in which the impact of variables can be evaluated.[65] The key implication for business studies research therefore, is the reproduction of environmental conditions. Finally, this approach responds to the "*how?*" and "*why*?" questions and focuses on contemporary events.

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[65] This has been a source of criticism from those who stress that "real life condition" (environmental factors) can not be reproduced.

5.1.2 Survey Research

Survey research is typified by the collection of data through self-administered questionnaires or structured interviews. Such data collection is made on a number of units and usually at a single point in time. The objective is to systematically collect a body of quantifiable data and to examine patterns of relationship for a wide range of variables.

The appropriate research objective is to measure the predictive value of specific theories by defining well-structured and measurable hypotheses. The research questions for which a survey can be usefully designed are *"who?"*, *"what?"*, *"where?"*, *"how many*?" and "*how much?"*. Typically the survey designer tries to limit the number of variables to be analysed and the number of questions to be asked. Because of the self-administered questionnaire style usually adopted, the questions have to be limited in number, clear and easy to answer. Score reversal and repeated questions are examples of techniques often used to eliminate biased answers.

5.1.3 Case Study Research

Case study methodology sets out to understand the dynamics of a given research problem within a specific context. This approach is appropriate when the objective of the research is to investigate existing theory that demonstrates suspicious application of *'particular causal links'* in a given context. Yin (1989) defines the case study as,

> *" ...an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between the phenomenon and context are not clearly evident; and in which multiple sources of evidence are used."* (p.23)

Case study methodology enables the research to address explanatory questions such as "*why*?" and "*how*?" Such questions address the operational links, which often require a longitudinal approach whereby the researcher evaluates the impact of time and the evolution of variables within a specific period.

The case study approach differs from the historical approach (Table 5.1) as the focus on contemporary events necessitates different methods of data collection.

5.1.4 Action Research

The key characteristic of action research is that the research is involved with the members of a firm to deal with a problem which has been mutually identified (Bryman, 1989). Strongly associated with applied social science action research has developed around a firm's need for "*problem solving*" objectives. Members of the research team and people from the participating firm work together in developing a diagnosis and a solution to the problem.

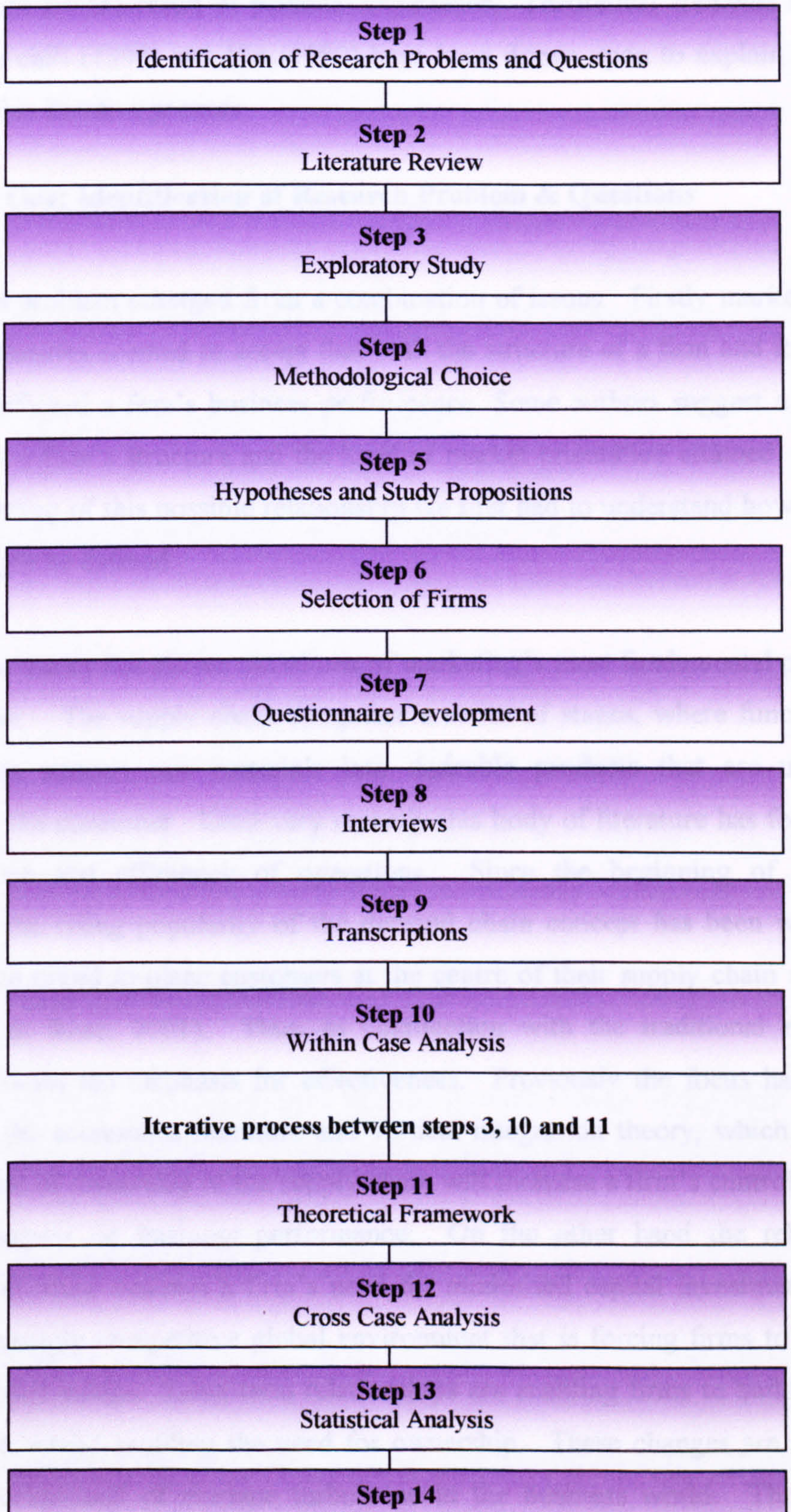
The main criticism of this type of research is that it is too similar to consultancy with the researcher losing the scientific requirement of objectivity; getting involved with firm politics and the general business environment. This has created concern about the ethical implications of such an approach. Nevertheless, action research has been recognised as explicitly concerned with developing findings, which can be applied to firms.

5.2 The Research Design: Building Theory

The most significant contribution of this work has been the development of the theoretical framework, presented in Chapter 4. This framework attempts to provide original insights in order to analyse the relationship between supply chain configuration, market orientation and business performance. The process, by which new theory emerged, is closely related to the research method adopted.

In this section a step-by-step explanation of theory building is presented. A chronological description of the different stages will also be presented in order to identify when the different methodological decisions were made (Figure 5.1).

Figure 5.1 The Development Process of the Proposed Theoretical Framework.



The components for matched pairs research design and the steps for theory building outlined below are the result of personal experience. Theoretical elements from the work of Churchill (1995) and Yin (1989) have been drawn upon to explain some of the steps in this iterative process.

5.2.1 Step One: Identification of Research Problem & Questions

The research problem emerged from a combination of issues. Firstly marketing and managerial theories seemed to accept that both the structure of a firm and its market orientation affected a firm's business performance. Some authors suggest a possible link between a firm's structure and the level of market orientation attained. To gain an understanding of this possible relationship we first had to understand how a firm's structure might be defined.

Supply chain theory has grown out of one of marketing's most fundamental principles – distribution. The supply chain comprises a series of stages, where functions are performed to convert raw materials into desirable products that are ultimately delivered to the consumer. Until very recently this body of literature has focused on cost reduction and efficiency of operations. Since the beginning of the new millennium the rising popularity of the demand chain concept has been witnessed. Managers are urged to place customers at the centre of their supply chain strategies (Lanagbeer & Rose, 2001). Thus, in conjunction with the traditional efficiency argument, comes the emphasis for effectiveness. Previously the focus had largely come from the economics literature and vertical integration theory, which suggests that the extent of ownership of the supply chain will increase a firm's control and thus positively impact on business performance. On the other hand the relationship marketing literature assumes a firm's need for minimised capital investment, driven by an increasingly competitive global environment that is forcing firms to establish inter-firm relationships. Long-term relationships are enabling firms to build a robust supply chain whilst avoiding the need for ownership. These changes are occurring against a background of extreme turbulence in the business world. The massive growth of disruptive technologies such as the Internet, Extranets and Intranets, is creating a platform that is changing industry structure and thus the appropriateness of long favoured strategic responses to them. Firms have to seek new ways of building

sustainable competitive advantage; taking advantages of the collaborative opportunities but not deserting careful strategic positioning. The task of managers then is to understand which supply chain stages should be vertically integrated and by what means, in order to achieve a strong market orientation and leverage both short and long-term business performance.

These conflicting elements inspired the objective of this research: to develop a better understanding of supply chain configuration and the likely relationships with market orientation and business performance.

The following questions were defined as research questions:

R_1: What types of integration exist within the supply chain?

R_2: What is the effect of supply chain integration on market orientation and business performance?

R_3: How might these integration typologies affect market orientation and business performance?

After defining the research questions, a review of the literature concerning the theoretical issues and the empirical research in this area was carried out.

5.2.2 Step Two: Literature Review

Looking for theories that would offer alternative explanations of the firm structure and its relationship with market orientation and business performance, we went beyond marketing and managerial theories and incorporated views from operations management, economics and new theories of the firm.

One aspect of firm structure frequently cited in the literature that seemed particularly relevant to market orientation and business performance was the supply chain. This became a key focus of the study. The literature review resulted in the identification of the five dimensions of supply chain configuration. These dimensions were an amalgamation of concepts taken from various theoretical perspectives. From the five bodies of literature analysed, nine possible supply chain configurations were identified (Chapter 4). Also some interpretations of the relationship between these

supply chain configurations and market orientation were found. As a consequence, the initial methodological approach was to conduct a large-scale survey through which the predictive value of these theories could be tested and the suspected relationship between structure and market orientation investigated through a structural equation modelling approach.

However, the disparate nature of previous research arising from fundamentally different paradigms i.e. relationship marketing and vertical integration theory, presented the need to create a single comprehensive model of supply chain integration. This amalgamation of supply chain integration concepts was evaluated and a theoretical explanation developed and presented in Chapter 4. Furthermore, since existing theories were generally industry or product specific, they had little power to explain the strategic differences amongst competitors. In other words, these approaches have limited value in explaining market orientation and business performance levels.

Thus, since some important aspects of the issues we wanted to analyse were not present in the literature, some doubts began to emerge as to the value of a structural equation modelling approach.

5.2.3 Step Three: Exploratory Study

The literature review identified key factors driving supply chain configuration. These factors were derived from different disciplines and discussed from different perspectives including transaction cost, vertical integration, the strategic approach, resources and capabilities and inter-firm relationship. Empirical work in these areas covered numerous countries, company sizes, industries, units of analysis and levels of complexity.

Although the literature review had a significant impact on this research the exploratory stage was largely inductive. The main objective of the exploratory research was to gather preliminary data about the types of supply chain configuration that exist and the dimensions of these structures. Semi-structure in-depth interviews were used to collect this data from a number of experienced purchasing and supply

chain directors based at high performing firms. The approach adopted here set out to *"expand and generalise theories (analytic generalisation) and not to enumerate frequencies (statistical generalisation)"* (Yin, 1994, p.10). It can be compared with grounded theory methodology (Glaser & Strauss, 1967) in that, through a set of procedures, it is possible to develop *'grounded theory'* about what is observed in the field (Strauss & Corbin, 1990). As Yin (1994) comments, this is an appropriate method when the investigator intends to answer a *'how'* question. The initial question we set out to address was *"how does supply chain configuration affect market orientation and business performance?"*

5.2.3.1 Levels of Analysis

As Luck & Rubin (1987, p.661) observed, qualitative analysis must be supported by a *'specified orderly process'*. According to Pettigrew & Whipp (1998), exploratory research should be developed at three different levels: the firm level, the industry sector level and the economy. At the firm level key issues to be investigated include the internal capabilities of the firm, their competitive orientation and their chosen strategic approach. At the industry sector level we are concerned with the business environment in which our firm operates, e.g. market structure, industry maturity and commercial networks. Finally, at the level of the economy, investigations are focused on a cross sectional analysis covering various industry sectors and in our case, taking a global perspective on the business environment. Preliminary findings to this exploratory research are discussed in Chapter 3.

5.2.3.2 Case Selection

To select our exploratory cases, we sought to identify firms that had demonstrated market-leader performance over the medium term. Both the Dunn & Bradstreet and the FAME databases proved useful secondary data sources, providing access to a wide range of published company information.

Initially four companies were selected: Rolls-Royce, Rentokil Initial, i2 Technologies and PA Consulting. As the research progressed and the iterative process between the literature review and this early data collection developed, a matched pairs research

design was conceived. To aid the questionnaire development and test the research design, a small number of matched pairs firms were identified using the snowball effect (Sudman, 1997).[66] Table 5.2 details the firms that took part in this section of the exploratory study.

The exploratory study was conducted with 27 managers and was supported by data obtained from several internal sources. Of these managers, 15 were interviewed, 12 commented on the questionnaire and all 27 managers completed it.

Table 5.2 Pilot study firm profile and Exploratory Stage participants

Pilot Stage		MATCHED PAIRS	
	Industry Sector	*High Performer*	Low Performer
	Car Components	Finelist	Partco
	Marine Engines	Vickers	Lucas
	Banking Services	Barclays Bank	Lloyds Bank
	Training Consultants	Hutherwaite	Tack International
Exploratory Stage	Civil Aviation	Rolls-Royce	-
	Hygiene Services	Rentokil Initial	-
	Business Consultancy	i2 Technologies	-
	Business Consultancy	PA Consulting	-

One of the key outcomes from the preliminary data analysis was the conclusion that the main study case selection procedure needed to be limited by one further criterion. In the exploratory study we had purposefully targeted both service and the manufacturing sectors so that they were equally represented in our research design. Previous research had hinted that there was no difference in the inter-firm relationships that existed between firms within the service sector and the manufacturing sector (*c.f.* Quinn & Hilmer, 1995). Whilst we have no evidence to the contrary, what did become clear was that the shape and length of the service sector supply chains were very different to those adopted by the manufacturing sector. The reasons for these differences, whilst interesting, did not form part of this study, therefore, the main study was limited to firms with a manufacturer somewhere in their supply chain (see Section 5.2.6).

[66] See section 5.2.6 for a more detailed explanation on the snowball effect.

5.2.4 Step Four: Methodological Choice

We have concerned ourselves with identifying the kinds of supply chain configuration that exist and how they behave in conjunction with market orientation behaviours and business performance outcomes. This approach to social enquiry is consistent with a Realism ontology in which, it is claimed, states or processes described by theories do exist. Realism[67] claims that theories are either true or false; science aims at the truth of how the world behaves. This has two major implications for this choice of method. First, the data must be collected in a scientific manner and secondly, the data collection method must '*fit*' considerations for the type of data required.

Bhaskar (1979, p.26-27) argued that the subject matter of social sciences cannot be reduced to the subject matter of natural sciences (for example, human behaviour cannot be reduced to biochemical reactions) because there are qualitative differences between them. Though the methods of the natural and social sciences share common principles, their procedures will differ because of the differences in their subject matters. He surmised,

> *"[T]he human sciences can be sciences in exactly the same sense, though not in exactly the same way as the natural ones."* (Bhaskar, 1979, p.203)

Hence, social objects cannot be studied in the same way as natural objects, but they can be studied '*scientifically*'.

> *"Thus it is obvious that one can no more set out to experimentally identify (or non-vacuously simulate) the cause of the French revolution than one can contemplate interviewing a gene."* (Bhaskar, 1979, p.30)

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[67] There are two major strands of Realism in the social sciences one in which Harré has applied his realist theory of the natural sciences to social psychology; and another in which Bhaskar, Keat & Urry and Benton have developed various versions of realist social science to accommodate Marxist Structuralism. Bhaskar, like Harré, also drew on the realist theory of the natural sciences and it is his approach to realism that we most closely follow in this thesis. For further reading see Outwaite, (1987).

Whilst acknowledging this as an extreme example, it is this canon that drives our choice of method. Outhwaite (1987, p.45-46) summaries the five principles of Bhaskar's epistemological approach.

1. A distinction is made between *transitive* and *intransitive* objects of science. *Transitive* objects are the concepts, theories and models, which are developed to understand and explain some aspects of reality, and *intransitive* objects are the real entities and their relations that make up the natural and social worlds.

2. Reality is stratified into three levels of domains: the empirical, the actual and the real. The *empirical* domain consists of the events that can be observed (the area on which Positivists concentrate), the *actual* domain consists of events whether they are observed or not, and the *real* domain consists of the structures and process that make up reality which produce events.

3. Causal relationships are regarded as powers or *tendencies* of things, which interact with other tendencies such that an observable event may or may not be produced and may or may not be observed. Social laws need not be universal; they need only represent recognised tendencies. This view contrasts with the Positivist view in which causal laws are regarded as universal constant conjunctions between events.

4. In the domain of the real, definitions of concepts are regarded as real definitions, e.g. statements about the basic nature of supply chains. These are neither summaries of what is observed nor stipulations that a term should be used in a particular way.

5. Explanatory mechanisms in the domain of the real are postulated and the task of the research is to try to demonstrate their existence.

This is the approach adopted by this thesis and is reflected in our choice of both qualitative and quantitative methods in our research design.

From this realist perspective we considered the adequacy of the literature to provide a theoretical framework for the examination of supply chain configurations in a marketing context. Whilst some theoretical frameworks relating to supply chains were found, we suspected that they were inadequate as analytical tools. Early exploratory interviews suggested that important elements were absent from these existing frameworks. Additionally, the elements that were thought to be relevant as part of the supply chain configuration concept, appeared in the marketing literature as divergent independent frameworks. Could the various frameworks be merged? If this was the case then we could propose and test a model that would predict market orientation and business performance.

Our research posed two types of question; '*What*?'[68] and '*How*?'[69] According to Yin (1989) this suggests the need for the application of both a case study and a survey method (see Table 5.1). A case method seemed appropriate for addressing the issues raised by R_3: *How* might these integration typologies affect market orientation and business performance? However, the case method would make it difficult to explore R_1: *What* types of integration exist within the supply chain? and R_2: *What* is the effect of supply chain integration on market orientation and business performance? Further, if the first question was not explored it would be impossible to approach the second question. Thus a triangulated approach was conceived.

The use of a survey in this context posed some fundamental challenges that had to be addressed before the method could be adopted.

The layers of complexity associated with supply chain configuration suggested a substantial and challenging questionnaire. The literature review and the exploratory study had identified supply chain configuration concept as a multi-dimensional construct. Pursuing the objective of accurate measurement, multi-item scales needed to be adopted for each of the identified concepts. Further, market orientation and business performance would have to be measured adopting the same principles. This suggested that the questionnaire would bring with it two key problems; it might prove

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[68] R_1: What types of integration exist within the supply chain? and R_2: What is the effect of supply chain integration on market orientation and business performance?

[69] R_3: How might these integration typologies affect market orientation and business performance?

difficult to complete without assistance and would take considerable time to complete. These difficulties suggested a low response rate and the return of insufficient useable questionnaires if the traditional method of postal survey was adopted.

There were also concerns about the usefulness of questionnaire data if it was collected through a postal survey, which would mean the researcher would not have a context in which to interpret the data. Whilst the survey data might reveal patterns that could enable us to test the existence of theorised causal relationships in the domain of the empirical, it would not be possible to understand the nuances of inter-firm relationships. For example, what makes inter-firm relationships succeed or fail in terms of market orientation and business performance? This would entail investigations into the domain of the actual and the real – understanding the underlying structures of supply chain configurations (*c.f.* Bhaskar, 1979). And as Mintzberg (1979) observed,

> *"...the field of organisation theory has, I believe, paid dearly for the obsession with rigour in the choice of methodology. Too many of the results have been significant only in the statistical sense of the word."* (p.583)

Thus the apparent alternatives were either; 1) to use the survey method and develop a simplified questionnaire to test amongst a large sample of companies the incidence or prevalence of the existing theorised dimensions of supply chain configuration or, 2) to find out more about the dimensions of supply chain configuration and how they interact with market orientation and business performance factors with fewer cases studied in greater detail or 3) to adopt a triangulated approach making use of both survey and case study methods. Gould (1991) suggests that such alternatives might not necessarily be opposing but rather could be used as complimentary to one another.

> *"The beauty of nature lies in detail; the message in generality. Optimal appreciation demands both, and I know no better tactic than the illustration of exciting principles by well chosen particulars."* (p.13)

The triangulation approach has been broadly defined as the use of different methodologies in the study of the same phenomenon with the objective of enhancing external validity. This type of approach is also known as "*between (or cross) method triangulation*." Adopting this approach suggested the possibility of developing a matched pairs sample of firms, enabling the analysis of two outling groups. This would allow us to draw generalisations about our findings without investigating the quantity of firms typically associated with survey research. Dealing with a smaller sample would also facilitate the collection of more detailed data. As the questionnaire would obviously benefit from completion through face-to-face contact with respondents, it was decided to widen the scope of the interview and include a semi-structured interview where the mechanisms underlying supply chain configuration would be discussed in more detail, thus enabling us to investigate R_3. We adopt a mini case approach to each of our companies.

5.2.5 Step Five: Hypotheses & Study Propositions

Because we were to adopt a triangulated approach both hypotheses and study propositions were developed. Hypotheses provided a framework within which theorised types of integration could be identified and quantified. The relationships between supply chain configuration, market orientation and business performance could then be tested, thus addressing issues raised by R_1 and R_2. Study propositions provided the framework for the in-depth interviews and qualitative data collection required to investigate R_3.

5.2.5.1 Hypotheses for Research Questions R_1 and R_2

R_1 *: "What types of integration exist within the supply chain?"*

R_2 *: "What is the effect of supply chain integration on market orientation and business performance?"*

Hypotheses were developed in line with the survey method. They represent plausible explanations for the research question that may be statistically tested. After selecting the matched pairs method, the study hypotheses were developed from the literature

review and insights resulting from the exploratory interviews that took place in parallel with the literature review. The resulting hypotheses where as follows:

$H_{0/1}$: There will be no significant difference between the level of business performance achieved by a firm and the supply chain configuration adopted.

$H_{0/2}$: There will be no significant difference between the supply chain configuration adopted and the level of market orientation achieved.

$H_{0/3}$: Business performance will not be significantly influenced by market orientation.

These hypotheses then formed the backbone of the research design identifying the four key components that required measurement, i.e. supply chain ownership, inter-firm relationships, market orientation and business performance. Further sub-hypotheses were also developed to help us better understand the big questions posed by $H_{0/1}$, $H_{0/2}$, and $H_{0/3}$. These are as follows:

$H_{0/1a}$: There will be no significant difference between the level of business performance achieved by a firm and the method of integration adopted upstream.

$H_{0/1b}$: There will be no significant difference between the level of business performance achieved by a firm and the method of integration adopted downstream.

$H_{0/2a}$: There will be no significant difference between the supply chain configuration adopted and the level of customer orientation.

$H_{0/2b}$: There will be no significant difference between the supply chain configuration adopted and the level of competitor orientation.

$H_{0/2c}$: There will be no significant difference between the supply chain configuration adopted and the level of inter-functional co-ordination.

$H_{0/3a}$: There is no significant difference between high and low performance firms and the level of customer orientation.

$H_{0/3b}$: There is no significant difference between high and low performance firms and the level of competitor orientation.

$H_{0/3c}$: There is no significant difference between high and low performance firms and the level of inter-functional co-ordination.

$H_{0/3d}$: There is no significant difference between financial performance firms and the level of customer orientation.

$H_{0/3e}$: There is no significant difference between financial performance and the level of competitor orientation.

$H_{0/3f}$: There is no significant difference between financial performance and the level of inter-functional co-ordination.

$H_{0/3g}$: There is no significant difference between customer performance and the level of customer orientation.

$H_{0/3h}$: There is no significant difference between customer performance and the level of competitor orientation.

$H_{0/3i}$: There is no significant difference between customer performance and the level of inter-functional co-ordination.

$H_{0/3j}$: There is no significant difference between innovation performance and the level of customer orientation.

$H_{0/3k}$: There is no significant difference between innovation performance and the level of competitor orientation.

$H_{0/3l}$: There is no significant difference between innovation performance and the level of inter-functional co-ordination.

$H_{0/3m}$: There is no significant difference between internal business performance and the level of customer orientation.

$H_{0/3n}$: There is no significant difference between internal business performance and the level of competitor orientation.

$H_{0/3o}$: There is no significant difference between internal business performance and the level of inter-functional co-ordination.

5.2.5.2 Study Propositions for Research Question R_3

R_3 *:"How might these integration typologies affect market orientation and business performance?"*

The study propositions are the equivalent of the hypotheses in survey research. They represent plausible explanations for the research question R_3 and direct the attention to factors that should be studied and analysed within the scope of the research. In common with the development of the research hypotheses discussed above, the study propositions were developed from the literature review and from insights emerging from previous experience.

According to the literature, integration typologies affect market orientation through the use of inter-firm relationships that affect the final offering to the consumer. How inter-firm relationships are implemented can shift an entire supply chain toward or away from market orientation behaviour.

From the transaction cost theory:

P_2: Ownership downstream provides increased control over market orientation behaviour.

From the vertical integration literature:

P_1: Integration can be achieved through ownership.

P_{11}: Integration can be achieved through inter-firm relationships.

P_{12}: Integration downstream drives market orientation.

P_{13}: Non-ownership upstream does not negatively affect market orientation.

From the strategic view:

P_{14}: Inter-firm relationships upstream can provide synergies that drive market orientation.

P_{15}: Ownership downstream provides barriers to entry which increase competitor orientation.

From the resource-based view:

P_{16}: Transactional relationships downstream weaken a firm's capability to implement market orientation.

P_{17}: Tight management of inter-firm relationships is vital when the method of integration downstream is not ownership.

From the relationship marketing literature, the dynamics of a successful inter-firm relationship might be implemented:

P_3: Through the development of trust within inter-firm relationships.

P_4: Through the development of commitment.

P_5: Through the development of co-operation.

P_6: Through strong channel leadership.

P_7: Through strong channel communications.

P_8: Through channel power.

P_9: Through co-ordination technology.

P_{10}: The lack of these components in a relationship marks a '*Transactional*' relationship.

Study propositions for the research questions were then used as a guide for the semi-structured questionnaire (Appendix 1, p.370).

5.2.6 Step Six: Selection of Firms

Having defined the research hypotheses, two things had to happen. Firstly, a tool had to be designed that was suitable for gathering the kind of data required for testing the hypotheses and secondly, the data had to be gathered from an appropriate selection of firms so as to enable us to understand the potential for generalisation of the subsequent conclusions.

Forty firms were interviewed: 35 were involved with manufacturing in-house, 4 with retail and 14 with selling directly to the end user through other means than retail (business to business), see Table 5.3. As can be seen from this total, some firms were involved in the manufacture and retail of goods, i.e. Nutricia, Cadbury's and Clarks. With the information gathered from these companies, six supply chain configurations are identified and presented. The criterion was to use the firm as the unit of analysis and compare each firm's supply chain configuration (i.e. its approach to upstream suppliers and downstream customers), with its level of market orientation and business performance. A further comparison between high and low performers would then be carried out to see if high performers differed from low performers in their approach to supply chain configuration and market orientation.

As discussed, the research design involved identifying twenty matched pairs of firms. Each pair was to consist of a high performance firm, demonstrating market-leader performance in its industry sector, and a competing firm from the same sector with a much poorer performance. We labelled the second firm in each pair the '*low performer*'. The twenty high performance firms were identified through selection guidelines, which were a combination of two criteria. A snowball effect (Sudman, 1997) was used whereby each high performance firm that had been selected and had agreed to take part in the study was asked to name a low performing competitor.

The guidelines for the selection of high performance firms were a combination of the following criteria:

1. Each firm had to demonstrate market-leader performance over the medium term (we looked back over the past four years). This was identified through secondary

data in the form of company information published by Dunn & Bradstreet and the FAME database.

2. The firm's supply chain had to involve a manufactured product at some point in the chain. Service companies (including two high street banks and management-training providers) were included in the exploratory research but their supply chains were revealed to be quite different to those of manufacturers. It was therefore decided to limit the research to firms that dealt with tangible products somewhere in their supply chain, even if those firms were, (as retailers are) service providers.

Table 5.3 Main study sample profile

	Industry Sector	*MATCHED PAIRS* *High Performer*	*Low Performer*
1.	Ethical Pharmaceuticals – Prescription only	Glaxo Welcome	AstraZeneca
2.	Aerospace – aviation, plane engines/parts	BAe	TRW Aeronautical Systems
3.	FMCG– instant noodles, snacks	Bestfoods	Beta
4.	FMCG – chocolate, sweets	Cadbury	KJS Kraftfoods
5.	Baby Equipment – baby feeding bottles	Cannon Avent	Jackel International (Maws)
6.	Footwear Manufacturer	Clarks	Essant
7.	Vitamin & Mineral supplements	Nutricia	Ernest Jackson & Co
8.	Automotive – aftermarket, car components	Federal-Mogul	Trupart
9.	Separation Science - chromatography	Jones Chromatography	Hichrome
10.	FMCG– breakfast cereals	Kellogg	Weetabix
11.	Wood Preservatives -	Akzo Nobel Woodcare	E Parsons & Sons
12.	Construction – windows/doors	Safestyle	Scandinavian Window Systems
13.	Construction – Bitumen manufacturer	Shell	Alpha
14.	Industrial Parts – Gyro manufacturer	Silicon Systems	Amivo
15.	Pharmaceuticals – over the counter	Mallinckrodt	SSL
16.	Sugar Manufacturer	Tate & Lyle	Napier Brown
17.	Grocery Retail	Tesco	Somerfield
18.	Personal Hygiene Products - deodorant	Unilever	Bristol Myers Squibb
19.	Ethical Pharmaceuticals – contraceptive pill	Wyeth Brothers	Schering Healthcare Ltd.
20.	Multimedia Training Packages	Time TV	VideoArts

Note:

- On 27th December 2000 SmithKline Beecham and Glaxo Welcome merged to become a single company now known as Glaxo SmithKline.
- On 1st January 2001 Bestfoods (previously Bestfoods & Van den Burghs) were acquired by Unilever to form Unilever Bestfoods.

5.2.7 Step Seven: Questionnaire Development

Two documents were produced. First, a list of questions used to guide the semi-structured part of the interview. This was titled '*Interview Guide*' (see Appendix 1)

and was not shown to respondents. The second document was a more traditional questionnaire to be used in the structured part of the interview. Several steps were taken during the development and testing of the questionnaire. Following Churchill's approach (1979), the questionnaire contained a number of indicators and measures that had previously been developed, tested and published in other research papers (see Appendix 3). The literature review identified construct development processes, together with their component sub-constructs and items. Secondly, key indicators and findings revealed by the qualitative exploratory research were included. Finally, questionnaires provided by the authors of previous works in this field were drawn on for additional items and measures deemed appropriate to the initial draft of the questionnaire. With the initial questionnaire completed a content and face validity exercise was carried out (Chapter 3, Section 3.3).

5.2.8 Steps Eight & Nine: Interviews and Transcriptions

In the majority of cases two or three people were interviewed at each company. Typically they were supply chain managers, purchasing or marketing managers. The interviews were recorded and generally managers felt unfazed by the procedure. There were only a couple of instances when permission to record the interview was withheld. Despite this, several firms did seek assurances about anonymity. Interviews were transcribed and in areas where the tape recording had been difficult to understand (as was the case in four instances), transcripts were sent to companies for verification.

Notes were taken in all interviews. These proved very important as the silences created by the note taking procedure frequently seduced managers into offering further information. Some of our most interesting examples came to light during these silences.

5.2.9 Step Ten: Within Case Analysis

Analysing data is one of the most difficult tasks in case study research. Since there are no constraints imposed through statistical packages or statistical tests, the

researcher's job is to conduct a scientific analysis through rigorous thinking and strict logic. Information unrelated to the study propositions though always interesting, should be left aside. A conscious effort should be made to define the study propositions, define the questionnaire accordingly and begin the analysis of data early in the process. As Miles & Huberman (1984) observe,

> *"Analysing data is the heart of building theory from cases. It is both the most difficult and the least codified part of the process. Since published studies generally describe research sites and data collection methods, but give little space to discussion of analysis, a huge chasm often separates data from conclusions."* (p.16)

The premise of avoidance of this problem must be to begin analysing each case as the data is collected. Constantly revisiting the issues relevant for the analysis allowed increased vigilance during future interviews, so that further relevant information could be collected. By defining the dimensions of inter-firm relationships (derived from the iterative process in which the literature review, the study propositions and the interviews fed into each other), it became possible to develop the theoretical framework presented in Chapter 4. In this framework, issues from the existing theories and new elements were combined in a scheme that was used to advance the dimensions of the supply chain configuration construct from the within-case analysis.

5.2.10 Step Eleven: Theoretical Framework

The shaping of the theoretical framework presented in Chapter 4 was a long and arduous process requiring more iterations than the average factor analysis! Each case shed more light on the supply chain configuration concept and thus impacted on the framework. Equally with every change to the theoretical framework came a more enlightened approach to the case analysis. Perhaps the most important lesson derived from the framework building process was momentum, direction and structure it created from an early stage.

5.2.11 Step Twelve: Cross Case Analysis

Together with the within-case analysis, there is a cross-case search for patterns. The theoretical framework developed to organise the analysis within the cases also helped in the development of the main conclusion of the study. Nevertheless, cross-case analysis and comparison amongst the groups of cases (e.g. high performers and low performers), a search for patterns is useful at this stage. It is also important to identify common ground, surprising similarities *and* surprising differences.

This last point deserves further discussion. One discipline that might compel the researcher to seek complexity is the analysis of similarities. Having identified similarities between cases the researcher must then be tasked with identifying the differences within those similarities and vice versa. Differences between cases must be identified and then the similarities within them unearthed. Such tactics can lead to more sophisticated explanations and raise new questions for further research. The objective must be to drive the researcher to go beyond initial impressions and try to evolve new explanations, which are novel and accurate rather than presumptuous.

Theory building is a highly iterative process but allows the emergent framework to be systematically compared with evidence, the literature review and cross case analysis. This process involves the constant comparison of theory and data, then back to theory and so on. Each iteration brings with it the constant process of parallel thinking through which explanations converge into a framework. At the same time, each new piece of evidence is looked at in a new way in order to avoid bias towards traditional approaches, facilitating the emergence of new ideas (Eisenhardt, 1988).

5.2.12 Step Thirteen: Statistical Analysis

A four-step approach to data analysis was adopted: 1) exploratory factor analysis (EFA) and coefficient alpha, 2) descriptive statistics (frequencies and cross tabulations), 3) hypothesis testing and 4) between methods triangulation. All statistical tests reported in this section were carried out with the aid of a statistical software package - SPSS.

5.2.12.1 Exploratory Factor Analysis & Coefficient Alpha

First, Churchill's (1979) traditional approach to scale development was adopted. This suggests that in order to increase reliability and decrease measurement error it is more advisable to use multi-item scales (as opposed to single item scales). The objective is to produce a set of items that reflect an underlying factor or construct, thus it is necessary to employ EFA and coefficient alphas.

EFA was conducted to examine the factor structure of each variable presented in the conceptual model. EFA is used to suggest the various dimensions associated with the underlying constructs (Churchill, 1979) on the basis of the resulting factor loadings. EFA is a data reduction technique and is useful for reducing the number of indicators to a manageable set. The analysis of factor loadings helps to identify factors that are independent from each other, thereby facilitating an understanding of the structure of a specific field (Hair *et al.*, 1998).

In order to reduce the number of items a principal components analysis (PCA) was applied (adopting a Varimax rotation, when Kaiser's rule is used for factor selection). This method was adopted because, although sub-dimensions could possibly be related, these relationships could not be anticipated *a priori* (*c.f.* Shoham, 1998). Further, Varimax rotation is the most widely applied analytical format to analyse orthogonal factors (Hair *et al.*, 1998) and allows a more intuitive interpretation of results (Shoham, 1998).

Co-efficient alpha remains the most widely used measure of reliability (Peterson, 1994). It is also used in this study to assess the validity of the scales. The reliability is evaluated through coefficient alpha, which is computed for the emergent factors.

5.2.12.2 Summated Scales

Once the EFA results had been obtained, items were regrouped (on the basis of the EFA results) through a summated scale approach. This method combines several variables that measure the same concept into a single variable. As Sullivan & Feldman (1979), observed, this method is used to specify more precisely the response

desired and does not place total reliance on a single response but instead on the average or *typical* response to a set of related questions.

5.2.12.3 Descriptive Statistics

Descriptive statistics were used in three ways; 1) to provide a summary of results through the examination of central tendency, 2) to examine variability within our data set and 3) to explore relationships between variables through cross-tabulations. Results using this method of analysis (see Chapter 7, Section 7.5) have largely been presented through the use of tables and histograms to help the reader identify patterns found within the data.

5.2.12.4 Hypothesis Testing

Two methods of hypothesis testing were adopted; discriminant analysis and measures of association. The discriminant analysis is a category analysis method. The measure of association adopted was lambda because of its capacity to deal with both nominal and ordinal scales.

Discriminant Analysis. Discriminant analysis provides a powerful technique for examining differences between two or more groups of objects with respect to several variables simultaneously. In other words discriminant analysis can help us understand which supply chain configuration has the maximum effect on market orientation and business performance. Data cases are the unit of analysis, therefore, the six supply chain configurations identified form the six groups for analysis and each case belongs to only one of these groups (i.e. has a distinct supply chain configuration classification).[70] By studying the way in which these groups differ from each other it is possible to identify a set of characteristics (discriminating variables) that '*discriminate*'. Klecka (1980) observes that there is no limit on the number of discriminating variables as long as the total number of cases exceeds the number of variables by more than two. Whilst discriminant analysis does hold the assumption of a normal distribution, Lachenbruch (1975) observes that if this assumption is violated,

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[70] Discriminant analysis does allow for a group of '*unclassified*' cases that will be assigned to a group later in the analysis (*c.f.* Klecka, 1980, p.8) but this is not an issue in our research.

the computed probabilities are not exact but may still be quite useful if interpreted with caution. The results for the discriminant analysis are detailed in Chapter 7 (Section 7.6.2).

Measuring Association. Measures of association enable us to quantify the strength and nature of the relationship between two variables in a cross-tabulation. As the majority of variables are measured on an ordinal scale, a positive sign tells us that the values of the two variables increase together, while a negative sign tells us that the values of one variable increases, the values of the other variable decrease. The larger the absolute value of the measure, the stronger the relationship between the two variables. As Norušis (1998) observes, there are many different measures of association because there are many different ways in which one can define what exactly '*association*' is. They differ in how they can be interpreted and in how they define perfect and intermediate levels of association.

The measure of association employed in our analysis was Lambda. Lambda was thought the most appropriate measure as it allows the analysis of both nominal and ordinal data which other measures do not (*c.f.* Norušis, 1998, p349-359). Our supply chain configuration typologies were labelled as nominal data, whilst the market orientation and business performance scales were ordinal. It is worth remembering the implications this has on the interpretation of results. If the two variables included in the cross-tabulation are measured on an ordinal scale, it makes sense to talk about their values increasing or decreasing together. For example, we might observe that the level customer orientation increases as the level of market-leader performance increases. Such a statement is meaningless for variables measured on a nominal scale. We could not say the supply chain type *increases* when customer orientation increases. In this situation, it is inappropriate to talk about the direction of association. All that can be measured is the strength.

As with all measures of association, lambda measures association in a very specific way – reduction in error when values of one variable are used to predict values of the other. If this particular type of association is absent, lambda is 0. No measure of association is sensitive to every type of association imaginable. The results from the lambda test are included in Chapter 7 (Section 7.6.1).

5.2.13 Step Fourteen: Triangulation

The final stage of the analysis was the comparison of patterns found through the statistical analysis with those found in the qualitative data. The triangulation approach has been broadly defined as the use of different methodologies in the study of the same phenomenon with the objective of enhancing the external validity. This type of approach is also known as *'between (or across) methods triangulation'*, (Campbell & Fiske, 1959; Creswell, 1994; Punch, 1998).[71]

According to Greene *et al.* (1989), there are five reasons to combine different methods within the same study:

- Classic: where there is an examination of the convergence of results.
- Complementary: where different facets of the phenomenon may emerge.
- Developmental: in which the methods are used sequentially.
- Initiation: where the aim is to find contradictions and new perspectives and
- Expansion: which seeks to add scope and breadth to the study.

Researchers increasingly acknowledge the benefits of using combined research methods. Indeed, proponents of qualitative research tend to be concerned with the generalisability (Yin, 1994). Equally, it must be accepted that bias also exists in quantitative research (Sudman & Bradburn, 1982). Since each method entails the potential to damage validity, triangulation is advised. As Maxwell (1992) explains,

> *"...*[It] *reduces the risks of systematic distortions inherent in the use of only one method"* (p.93)

Whilst limitations of time and cost often restrict researchers to adopting either a qualitative or quantitative approach (Jick, 1979; Creswell, 1994), this research adopts both methods in an attempt to minimise bias.

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[71] There are a small number of authors, who argue for a second type of triangulation, known as *'within method triangulation'*. This involves the use of multiple techniques within a given method to collect and interpret data (Denzin, 1978; Creswell, 1994). This is illustrated by the approach applied in the survey used for quantitative study, where multiple scales are used for the same construct (Jick, 1979).

This research adopts the *'dominant – less dominant'* design proposed by Creswell (1994). In this study, the dominant approach is qualitative and the less dominant, quantitative. Thus, despite the main findings being qualitative (Chapter 6), significant quantitative findings are also presented (Chapter 7). The comparison of the two methods converges in Chapter 8, making use of the triangulation in the presentation of key empirical findings and conclusions.

5.3 Summary

The objective of this chapter has been to describe and discuss the methodology used to develop the theoretical framework and test the operational model and hypotheses presented in Chapter 4.

This chapter has discussed the prevalent issues associated with data collection in the main study: the unit of analysis, the selection process and the development and administration process of the data collection instruments (the semi-structured and structured questionnaires). Finally, we have considered the techniques used in the data analysis stage of the research: within-case and cross-case analysis, exploratory factor analysis, discriminant analysis, measures of association and ultimately between methods triangulation. These techniques are presented in the following chapters: Chapter 6 presents the case analysis, Chapter 7 the statistical analysis and Chapter 8 the between methods triangulation, to highlight key empirical findings and conclusions.

However, since most authors associate the term triangulation with *'between methods triangulation'* (Punch, 1998), this is the interpretation adopted in this study.

CHAPTER 6

Case Analysis and Findings

Introduction

This chapter presents the research findings of the main study through case analysis. We begin by examining the nature of the three theorised approaches to the supply chain; transactional relationships, influential relationships and ownership. We then present the supply chain configuration found within our sample of forty firms. Each supply chain configuration is examined in detail through two different analytical approaches. In this chapter a case study approach is adopted and the qualitative data is used to explore the nature and drivers of the supply chain configuration adopted and its association with market orientation and business performance. The second approach is detailed in Chapter 7 and uses statistics to explore the dimensions of the supply chain configuration typologies.

6.1 Supply Chain Configuration

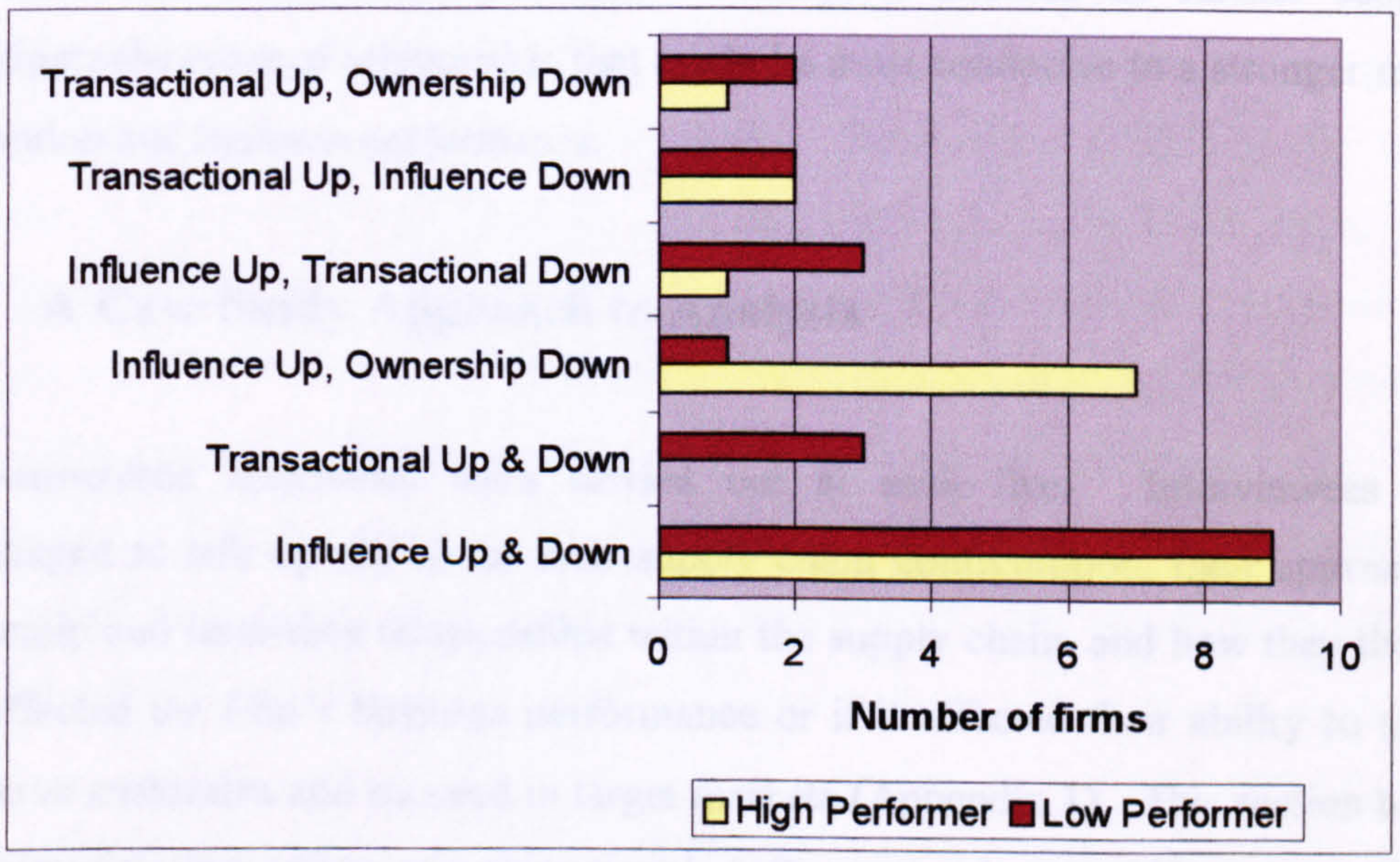
In Chapter 4 we presented a taxonomy of the possible types of relationships that might exist both upstream and downstream within a single supply chain. From this nine possible supply chain typologies were identified (Figure 4.4). We labelled these typologies '*supply chain configurations*'. With the objective of first verifying their existence and secondly understanding more about their nature and effects on market orientation and business performance, we collected data through semi-structured interviews and questionnaires from a matched pairs sample of companies. Whilst the taxonomy suggested the existence of nine possible supply chain configurations, our research identified six (Figure 6.1).

Firms were categorised as being *either* transactional, influence *or* ownership led in the supply chain configuration. However, it is important to note that 40% of firms adopted a multi-channel approach to their markets. For example, Nutricia manufacture vitamins and supplements. They sell to supermarkets (with whom they

have a transactional relationship), to pharmacies (with whom they have an influential relationship) and through their own retail outlet (which they own 100%).

Our theory suggested that integration downstream (whether it was through ownership or influence) was important for the level of market orientation and thus business performance. We have suggested that ownership, requiring greater investment and resource, would afford the firm less flexibility to react to changing consumer needs and could therefore negatively impact on business performance. On the other hand there is some evidence to support the argument that ownership downstream increased closeness to the customer and a better understanding of target markets (Harrigan, 1985c; Davenport, Harris & Kohli, 2001). Further, we have suggested that influence downstream would allow firms greater flexibility in reacting to consumer needs and thus increase both market orientation and business performance. We needed to collect data in a way that measured this level of complexity at the same time as measuring the likely impact of the different types of supply chain configuration.

Figure 6.1 A summary of the supply chain configurations identified through the main study.



Accordingly a *'majority usage'* categorisation was developed. If ownership existed as part of a multi-channel structure and was the method adopted for the majority of sales (downstream) or purchases (upstream) for that business unit, it was recorded in the supply chain configuration as if the route to market was ownership alone (either upstream or downstream). Equally, if influence was recorded as part of a multi-

channel structure and was the majority usage method for sales/purchases, it was treated similarly. Transactional relationships were treated the same. Therefore, the supply chain configuration was categorised as either ownership, influence or transactional upstream and downstream. This was because we wanted to understand the interaction of supply chain configuration with market orientation and business performance. The majority usage method was logically thought to be more likely responsible for the firm's ability to achieve higher levels of market orientation and business performance. It would also help define the resource commitments and flexibility offered by each approach.

Where multi-channels included ownership and relationship approaches to market, these companies were also asked about the nature of their relationships (whether they were transactional or influential) and the questionnaire was completed with a typical downstream relationship in mind. This allowed us to understand the impact of ownership on market orientation and business performance, together with the extent to which it might differ from the impact of inter-firm relationships on market orientation and business performance. Finally, it allowed us further scope to investigate the types of relationship that might be most conducive to a stronger market orientation and business performance.

6.2 A Case Study Approach to Analysis

Semi-structured interviews were carried out at each firm. Interviewees were encouraged to talk openly about their supply chain configuration, their approach to ownership and inter-firm relationships within the supply chain, and how they thought this affected the firm's business performance or if it affected their ability to satisfy and serve customers and succeed in target markets (Appendix 1). This section begins by examining the nature of transactional, influence and ownership approaches to supply chain configuration. We then examine how the positioning of these approaches (whether upstream or downstream) impact on market orientation and business performance. We do this by taking a detailed look at the supply chain configurations found in our study.

6.2.1 Transactional Relationships

The first part of the analysis looked at all firms that used transactional relationships as a part of their supply chain configuration. We wanted to understand exactly what was meant by a transactional relationship and in what forms it exists. Fourteen of the forty companies interviewed used transactional relationships as a major part of their supply chain configuration. There was a strong consensus amongst interviewees as to the nature of a transactional relationship. They were generally described as '*doing business without a relationship*'. There seemed a lack of emotion associated with this type of transaction. Business seemed very cut and dried. There was no mention or discussion around personal relationships (*c.f.* Wilson, 1995) yet sometimes the firms dealt with each other frequently. This was perhaps because, whilst many firms regularly transacted with each other, the individuals performing the transaction were often different.

Where transactional relationships occurred upstream the items purchased tended to be uncomplicated items with little added value; often raw materials. They were regularly referred to as '*commodities*', for example, sugar cane, chemicals for making plastics or pharmaceuticals, corn, wheat, milk, steel. These items tended to be widely available and competitively priced. Switching costs (*c.f.* Heide & John, 1988; Jackson, 1985) were reported as being low and whilst the goods purchased were essential items to the purchaser, no single sourcing policies or agreements were found where this type of relationship existed (*c.f.* Macbeth, Ferguson & Neil, 1994; Alexander & Young, 1996). In commenting on the reasons for adopting a transactional approach to the purchasing of commodities, the Tate & Lyle Category Manager commented....

> "*...when you're buying on the spot market it must be fairly competitive, you don't <u>need</u> to get into long-term relationships*" (Tate & Lyle)

It is this environment that drove the '*shopping around*' approach toward the purchasing of commodities. There was a feeling that firms always sought a transactional relationship where it would suffice. The Internet has made this approach to purchasing much more visible and accessible. (*c.f.* Porter, 2001). Such behaviour

is predicted by transaction cost theory as externalities and asset specificity are low (Williamson, 1975). But the relationship marketing theory seems to suggest that the development of relationships brings many advantages (*c.f.* Johnson & Lawrence, 1988; Möller & Halinen, 2001). Managers commented on the expense and difficulty in developing and maintaining long-term relationships. As Rentokil Initial's Purchasing Director noted,

> *"...it's my job to turn anything we buy into a commodity. That means we can push hard for the best price and the best deal. At the same time we can control total cost. Where it's not in our interest to invest in a relationship with a supplier we will avoid it. Let them take the risk and provide the investment. We want to be in a position to simply buy what we want, when we want it at the lowest possible cost....."*

This concept of *'total cost'* (as opposed to price) was pervasive within those companies that had achieved a high level of business performance and implemented transactional relationships.

Downstream transactional relationships tended to exist where firms were largely production or sales oriented in their approach rather than market oriented. As the Head of Purchasing at Jackel International observed,

> "...*the intention to work closely with customers* [retailers] *is there but the implementation of these intentions is difficult."* (Jackel International)

An example of the difficulties Jackel International (manufacturers of baby equipment) were having with trying to develop a long-term relationship was illustrated by their experience with one of their largest customers, Boots the Chemist. Their relationship with Boots is transactional. The Boots purchasing department call Jackel International and place an order. The order is processed and delivered by Jackel Int. Boots are invoiced and later pay. What Jackel would like to do is build a relationship with two or three key personnel at Boots and make that account the responsibility of a single sales person so that a relationship may begin. This, Jackel feel, would make new product introductions easier and more likely to succeed. However, Boots have a

policy of multi-department experience for their staff. This means that the Boots contact (usually the buyer at Boots) is changed approximately every six months. Personal relationships do not develop and there is a constant need to bring the new purchasing hand up to speed on the products and turn-around times.

Transactional relationships therefore existed for two reasons. Sometimes they are a result of deliberate policy in order to achieve best price for commodity products that have little added value created by the seller. At other times this is a default position where intended relationships fail. No account has been taken of this in either the transaction cost or vertical integration and marketing literature. Whilst it could be argued that the sourcing of strategic partners may provide a solution to this difficulty upstream (*c.f.* Quinn & Hilmer, 1995; Alexander & Young, 1996), there is no suggestion in the literature for encouraging downstream relationships when one party disregards interest.

In both cases the key characteristics of a transactional relationship were the same. They were described as involving '*minimal communications*' between the firms, with '*expected price pressure*' from the purchaser and generally found in '*highly competitive and volatile*' markets. There seemed no loyalty between firms and their customers. There was little sharing of information and a lack of openness between firms. However the minimal communications were still reported to be timely and accurate. There was no evidence of channel leadership – little or no feedback from one transactional firm to the other; little in the provision of operations guidelines, no uniform procedures encouraged and no input from one firm into policy formation of another.

What was perhaps more surprising was the level of trust between firms in a transactional relationship. There were reports of firms being very helpful when the purchasing firm was experiencing difficulties with supply. This is perhaps evidence of customer-oriented behaviour (Narver & Slater, 1990). One firm put this in to context by saying,

"....the only question we ask when our customer tells us to jump is, how high?"

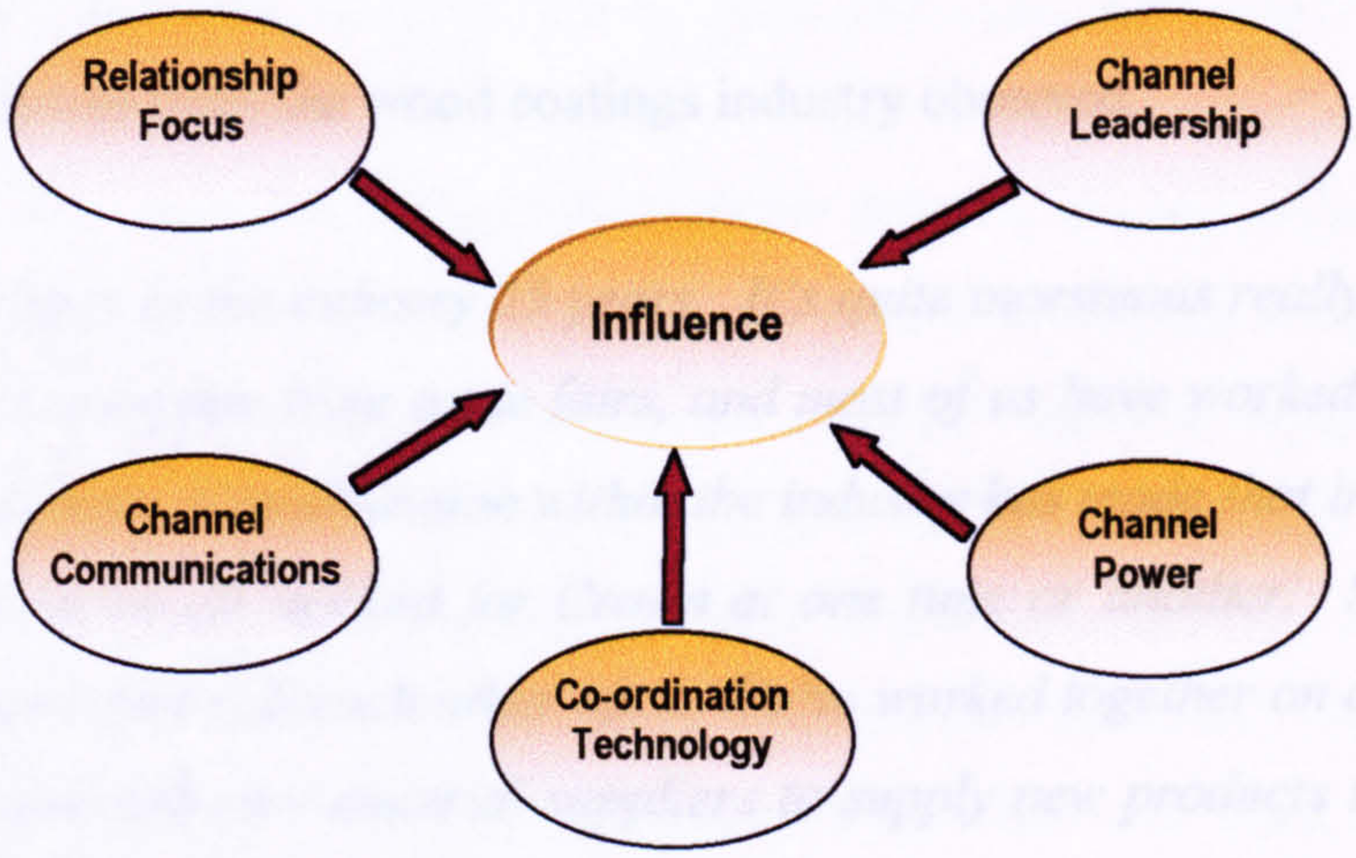
Whilst the need to place the customer at the centre of supply chain strategy is recognised in the literature (Langabeer & Rose, 2001), Porter observes that when firms rush to satisfy customer needs in this fashion it is often at the expense of profitability. The need for a clear strategic approach towards market orientation and the supply chain becomes apparent. This example also emphasises the interactive nature of the two phenomena. Interestingly, a low performing firm made this comment.

Firms purchasing in a transactional relationship also thought that their suppliers were generally knowledgeable about their products. Downstream buyers were thought to be less knowledgeable. In both cases firms reported less commitment and co-operation where transactional relationships were identified.

6.2.2 Influence

Thirty-four of the forty firms interviewed used influence as part of their supply chain strategy. The literature review (Chapter 2) has suggested that influence encompassed five key factors; relationship focus, channel communications, channel leadership, channel power and co-ordination technology (Figure 6.2). Interviewees were not asked specifically if they '*trusted*' their trading partner if they felt they had '*channel leadership*' within their supply chain. They were, however, encouraged to discuss the nature of their inter-firm relationships and the five factors were used as a framework for identifying evidence of a relationship during the case analysis.

Figure 6.2 The theorised dimensions of 'Influence' in an inter-firm relationship.



1. *Relationship Focus* (*c.f.* Siguaw, Simpson & Baker, 1998). The literature suggested that relationship focus was a multi-dimensional construct that encompassed *trust* (Ganesan, 1994; Morgan & Hunt, 1994), *commitment* (Anderson & Weitz, 1992) and *co-operation* (Cannon, 1992). We found many examples of co-operation and commitment within the interview transcripts. These examples were often illustrated through particular projects, where two firms had worked closely together to achieve previously specified and mutually beneficial objectives and goals. Kellogg's cited the example of a specific project with their key downstream retailers,

> "*…we had a big category management project with Sainsbury's last year and we shared a lot of information with them….market dynamics, why people purchased, who's buying what, why and when.*"

It became apparent that in order for commitment and co-operation to be achieved within an inter-firm relationship, there was a need for an underlying understanding of trust. Trust was defined in terms of one firm going out of their way to help another, reliable promises between firms, level of knowledge about products and openness in dealings between firms. Quite often this also involved relationships on a personal level between individuals *(c.f.* Wilson, 1995) which went back several years. This created a relaxed attitude toward partners. A Clarks representative casually commented,

"...oh, everyone knows everyone in the shoe industry."

An interviewee from the wood coatings industry observed,

> *"...I've been in the industry 25 years. It's quite incestuous really. Everyone knows everyone from trade fairs, and most of us have worked together at some point. Consolidation within the industry has made that inevitable – I think we've all worked for Crown at one time or another. So if we get stuck we just call each other up.... We've worked together on development projects with raw material suppliers to supply new products to our trade customers – for special architectural paints. We could not have afforded this kind of development without partnering with another company and it has been long established friendships that have enabled us to do this. Not always but mostly..."* (Blackfriars)

Where long-term personal relationships were not involved the risk of entering into such projects was perceived as higher and the need for trust greater. Kellogg cites the example of an ECR (Efficient Consumer Response) programme led by retailers in an effort to breakdown what has been described as '*the traditional adversarial barriers between retailers and suppliers*' (*c.f.* Bloom & Perry, 2001; Ailawadi, 2001). The idea was to try and build relationships by first building trust, demonstrating openness and commitment by sharing data with suppliers on sales levels, purchasing habits, lifestyle information. Technology has enabled supermarkets to become supreme experts at collecting vast amounts of data from their customers through loyalty card schemes. They collect purchasing habit information from the consumer in exchange for discounts and special promotions. The customer has to do nothing but hand over a piece of plastic at each shopping expedition. For the supplier, this information offers opportunities for increased efficiencies and effectiveness. If they can predict demand more accurately, they can create more efficient production schedules and reduce stock levels, which in turn provides opportunities to reduce costs whilst delivering customers what they want when they want it. This openness has its emphasis on market orientation behaviour and brings with it benefits for the entire supply chain (*c.f.* Hammer, 2001).

2. *Channel Communication* (Mohr & Sohi, 1995). For a relationship to really work channels of communication must be open and easily accessible. As cited in the Kellogg's example above, some of the most successfully implemented relationships have come about through the defining of clear objectives and goals. We examined five key aspects of communication; direction, formality, frequency, quality and information sharing. This analysis began to suggest that different types of relationship existed. For example, some firms tended to be extremely formal in their approach to relationships. They would explicitly discuss terms and ensure that the relationship had been written down in detail. These tended to be firms that demonstrated greater channel leadership and were in a position of channel power (see points 3. & 4. below). Other firms spoke of '*gentlemen's agreements*' and stated that committing everything to paper implied at lack of trust and was unnecessary.

The level of information shared between firms also varied with some firms being far more open than others. There was a great deal of face-to-face communication as well as remote communication i.e. e-mail, Extranets, fax, telephone. The level of information sharing was reflected in the way co-ordination technology was used by firms (see point 5. below). Firms that did share large amounts of information tended to do so through EDI systems, EPR systems and regular use of e-mail. These firms talked frequently about '*working together*'.

Where problems had arisen within relationships, they were frequently related to communication difficulties. Interviewees made such comments as, *"they didn't tell us...," "...we didn't know that..." "...they never explained..." and "...if only we'd known..."*. This suggests a close association between the dimensions of relationship focus, i.e. trust, commitment, co-operation and those of communications, direction of information flow, quality and level of information sharing. The relationship marketing literature, whilst making reference to both of these constructs does not specifically link them. Strong communications seem to build the confidence of one party in the ability of their strategic partner to create and deliver value (though it is recognised that in order to be sustainable, this must be reinforced by delivery of promise). Our findings therefore suggest that good communications are associated with a stronger relationship focus.

3. *Channel Leadership* (Schul, Pride & Little, 1983). The presence of channel leadership can result in benefits for both the firm implementing the leadership and the firm being led. We examined three aspects of channel leadership; participative leadership (the level of influence a firm has in creating channel leadership), supportive leadership (the level of support a firm provides in following channel leadership) and directional leadership (who is led by whom). Federal-Mogul provides a good example of how channel leadership can benefit more than one member of the supply chain. Federal–Mogul have worked with TNT (a courier company and ultimately a consumer of Federal-Mogul products) to fulfil a particular need. As the TNT fleet spend so many hours on the road they regularly need replacement brakes or braking components. This is a large and unavoidable cost commitment for TNT and needs to be carefully managed. The relationship between Federal-Mogul and TNT has resulted in TNT specifying only Federal-Mogul braking materials on their fleet.

> *"...they want constant product and price nationally, so we've gone and agreed a product that they're happy with and a price that they're happy with..."* (Federal-Mogul)

Then Federal-Mogul took one further step. As a manufacturer and distributor they were not in a position to fit the braking materials TNT required, so they then involved a distribution network of fitters to deliver the Federal-Mogul products purchased by TNT. In this example Federal-Mogul worked with the Edmonds Walker network. Such agreements are developed on a case-by-case basis with all parties recognising the need to create a win:win situation. As Federal-Mogul point out,

> *"...sometimes they* [the fitting network] *will sell to the customer directly and on our behalf, sometimes we actually invoice the product.."*

In this example Federal-Mogul demonstrate strong participative leadership and Edmonds Walker demonstrate strong supportive leadership. The direction of the leadership is downstream; from the manufacturer to the fitter. Yet both firms benefit from the presence of leadership in the supply chain.

Again we can say that without relationship focus it would be difficult to implement channel leadership. In order for Edmonds Walker to provide supportive leadership they must be committed to and co-operate with their upstream supplier. This is why we consider channel leadership to be a dimension of influence and not an independent factor.

Other examples of leadership tended to relate to the control of shared co-ordination technology systems. For example, Finelist offered software to motor factors and independent garages to help them with inventory control. This not only improved the cash flow and stock holdings for the independents but also ensured Finelist gained regular and loyal customers. Equally with Tesco and Kellogg, we saw the adoption of EDI systems, sharing sales and delivery data instantaneously between to two companies. Unlike the Federal-Mogul example, these two companies are of equal standing and size, each market-leaders in their sector. Yet they are part of the same supply chain. This creates some confusion about leadership. Is it correct to say that Tesco demonstrates participative leadership and Kellogg supportive leaders? The collaboration appears more complex than that. Tesco is not Kellogg's only customer and EDI systems have to be compatible with other key customers (e.g. Sainsbury, Asda, Somerfield). Here we see the advantage of a co-ordination technology platform – the Internet – impacting on industry structure (Porter, 2001). Tesco was part of a group of retailers that developed and supported the industry level introduction of EDI in co-operation with key suppliers. Whilst Tesco's role in this adventure was undeniably significant, whether it constitutes channel leadership (implying one taking control over others) or channel collaboration (working together with others in order to develop best practice) is open to debate. Equally Kellogg demonstrates examples of participative leadership through their application of MRP[72] systems upstream.

4. *Channel Power* (Gaski & Nevin, 1985). To gain a better understanding of channel power within an inter-firm relationship we looked for perceived and exercised reward/coercive power in upstream and downstream relationships.

[72] Material Requirement Planning

Specifically, perceived power is viewed as the firm's perception of their trading partner's ability to mediate reward & punishment. Exercised power is viewed as the actual fulfilment of rewards and imposition of punishments by a firm. We found that the old adage, *'the customer is king'* was generally true. The further down the supply chain a firm is positioned, the more power they appeared to have. Much has been written about the shifting of power downstream, away from manufacturers and towards supermarkets *(c.f.* Ailawadi, 2001; Bloom & Perry, 2001). One manufacturer talking about supermarket power, observed,

> *"...you play their tune, they have the power, you take on the costs...."* (Nutricia)

As Bloom & Perry (2001) observe, the effect of power is not always clear cut. Their research indicated that the effect of Wal-Mart's[73] power on their suppliers' profitability varied. Their findings suggested that large-share suppliers to Wal-Mart performed better than their large-share counterparts reporting retailers other than Wal-Mart as their primary customers (i.e. less powerful retailers). Equally, firms that did not form strong associations with Wal-Mart faired less well. This suggests that power may not reside within a single supply chain stage and that the interaction of two powerful supply chain stages might bring mutual benefits to both parties.

Ailawadi (2001) reviews the literature that identifies brand strength as a driver of channel power. This combination of power through brand development and power through consumer knowledge developed via a consumer interface (i.e. the shop floor or an Internet site) suggests that channel power might be used to great effect. One manufacturer, selling prominently branded products to the top five supermarkets commented on a supermarket initiative to breakdown the barriers with suppliers and to build relationships and share data in an attempt to increase consumer response efficiency,

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[73] Wal-Mart are the largest retailer in the United States and as such have been the focus of much research in this area, not least because their data is perhaps more readily available to researchers through Computstat.

"...my view, which is fairly cynical, it's just another way of getting suppliers to do more work for the retailer."

The misanthropic view held by this respondent suggests that channel power is difficult to identify and manage. Where care is not taken in doing so, the misuse of power (or equally the perceived misuse of power) has the potential to create a negative impact on both parties.

Interviewees suggested that building knowledge of the customer and the consumer was the key to creating power upstream in the supply chain. When firms had channel power, they had more control over pricing, advertising, promotions, inventory control and increased efficiency. They spoke of '*taking control*' and '*understanding different needs at different stages*'. One manufacturing interviewee observed,

"...in the past we've been too focused on what our consumers want and not on what our customers want. This has meant that some of our potential customers did not stock our products and we had no route to market."(Bristol Myers-Squibb)

BMS have dealt directly with the consumer and have gained an excellent understanding of the products consumers want to buy. However, they have not used market knowledge (which generates power through product desirability and brand loyalty) to persuade their customers, i.e. the retailers, that they have achieved these objectives. Equally, they have not gained market knowledge of the retailer's needs and wants regarding merchandising, packaging, quantities and frequencies of deliveries – all of which are vital to retailers trying to ensure goods are on the shelves in the right place at the right time (*c.f.* Connor & Peterson, 1992; Gerstner & Hess, 1995; Friend & Walker, 2001; Hammer, 2001). This suggests that BMS have developed a latent power on which they are simply not capitalising.

By building an understanding of the consumer and the customer Federal-Mogul managed to capitalise on channel power. One of their brands is Champion spark

plugs. They have managed to reach an agreement with police workshops by understanding the way they work.

> *"We do quite a lot of business with the police workshops up and down the country. Their buying habits mean that they don't keep stocks of products and they want a delivery within a couple of hours and it's more efficient for us to pay a distributor a margin because he's already got the stock and he's already got a fleet of vans. ...he's probably already delivering hand cleaner to the police workshops so he's happy to deliver spark plugs, and what we often find is that if we've won the business for him, and I say Mr. Distributor here's some profit for you, he's only too happy to work on less profit than if he'd had to go out and develop the business for himself."*

In this case one supply chain stage has used its market knowledge to increase its profit margins at the expense of another to their mutual satisfaction. This suggests that market power is associated with the development of core skills that add value to downstream customers and consumers.

The literature regarding channel power makes much of its association with profitability (e.g. Ailawadi, Borin & Farris, 1995; Bloom & Perry, 2001), suggesting that when a firm becomes more profitable, by implication it also becomes more powerful. Yet the issue of power is a complex one. The existence of what Bloom & Perry (2001) label *'countervailing power'* suggests that an association between two supply chain members extorting equal levels of power might balance the power relationship and be more readily associated with mutually beneficial outcomes (*c.f.* Etgar, 1976; Gaski, 1984). Further, the existence of power does not necessarily imply its appropriate application. This issue, though prevalent, falls beyond the boundaries of this study but deserves further attention.

5. *Co-ordination Technology* (Berry, 1995). Information technology (IT) enables the enhancement of the practical value of building and maintaining inter-firm relationships by efficient performance of key tasks. More specifically, co-ordination technology, (IT that enables firms to share openly proprietary

information), facilitates the tracking of buying patterns and overall relationships between firms, customising promotions, pricing to customers' specific requirements, providing two-way communication channels and the personalising of core offering with valued extras. We saw many examples of co-ordination technology increasing the visibility of large sections of the supply chain that, without co-ordination technology would remain latent, often within the firm as well as within the supply chain. Co-ordination technology worked on two levels, facilitating inter-functional co-ordination within the firm and inter-firm co-ordination within the supply chain.

Certainly the Internet has meant a lot more information is now available to supply chain members. For example EQUAS lists daily sales figures and stockholding levels at any point in time for major retailers. This is a subscription service whereby firms can tap into information and use it to update their own systems to create CMI (Code Managed Inventory) negating the need for retailers to place orders. As Kellogg's commented,

> "*...we just tell the retailers what we're going to send in.*"

The manufacturer becomes the inventory controller for the retailer. This adds value for the retailer. So does the manufacturer charge for this extra facility?

> "*...well no, what it means is that we have better control.*" says Kellogg. "*...at the moment we get lots of peaks and troughs because they decide when the products are coming in, but if we know what the predictability is, then we say, we know that they need this..... so they never run out of stock.*"

This has the added benefit for the retailer of not having to dedicate resources to inventory of the committed supplier.

Lack of co-ordination technology was generally thought to be a disadvantage but acquisition was not thought a vital requirement. One high performance firm commented,

> *"we're probably quite backward in those terms, the purchase orders we place on suppliers are still faxed across to the various parts of the world* [to regional administrative offices] *and then faxed on to the supplier..."* (Clarks).

This firm went on to acknowledge they are currently in the process of automating this system with the objective of *"having full visibility within the business of an order wherever it is in the supply chain."*

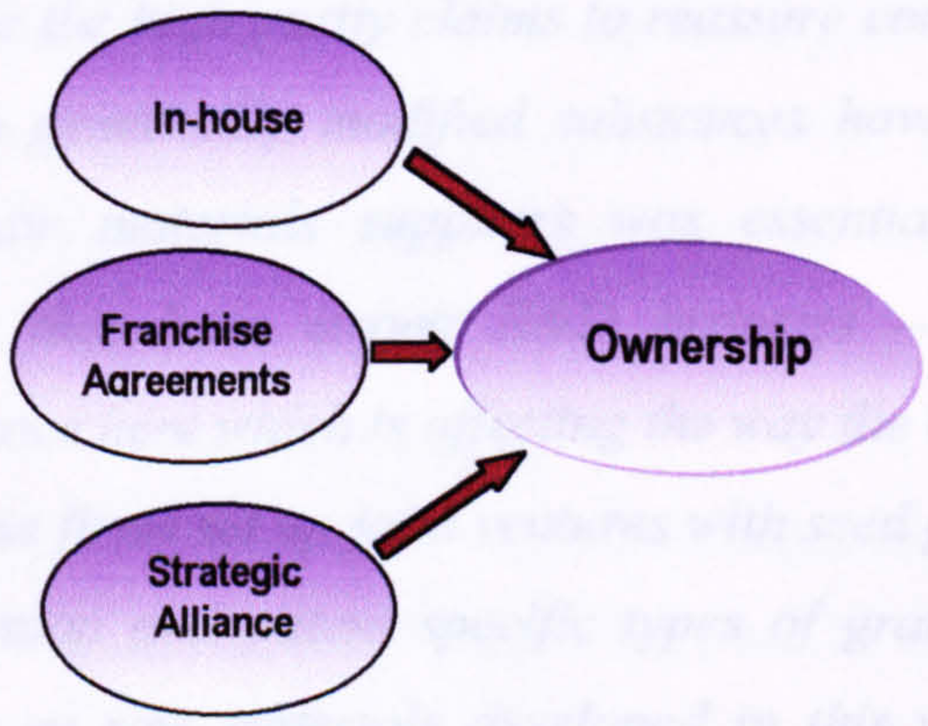
> *"I think technological advantages for the partnership we have with our suppliers is currently more about actual design work itself. A lot of factories now have huge screens with lots of designs, they can build a test pair, a sample if you like, very, very quickly and get it flown to us over a weekend. We can chop and change it, see if we like it and get it back to them in a couple of days. Or even get 3D images now you can rotate on your screen.... I think that's improved the run around of design, which allows places like the Far East to catch up with places like Italy."* (Clarks).

This is an important point. It demonstrates how technology has begun to make it possible to outsource and seek out economic and labour conditions world wide that suit the needs of both customers and suppliers. But as Cairncross (2002) explains, the potential of these technologies has not yet begun to be realised. Our firms are adopting co-ordination technologies but adapting them to their existing business model. As in the cases observed by Hammer (2001), the majority of our firms are using co-ordination technology to increase efficiency and not generally for effectiveness. Any exceptions to this rule were all high performance firms (Cadbury, Clarks, Kellogg, Tesco, Tate & Lyle, Unilever). This provides evidence to support the argument for downstream integration (*c.f.* Wise & Baumgartner, 1999) and that co-ordination technology has an important role to play in improving both efficiency and effectiveness of supply chain configuration operations.

6.2.3 Ownership

We defined ownership in terms of financial ownership and looked to see which stages of the supply chain a firm took financial ownership of. Ownership need not be 100%. What we discovered (in-line with what has previously been reported e.g. Blois, 1972; Powell, 1987; Romme 1990) was that firms took financial ownership of other supply chain stages in various ways. Three forms of ownership were identified, 1) in-house, which meant 100% financial ownership *(c.f.* Harrigan, 1985c), 2) partial financial ownership such as strategic alliances and joint ventures (*c.f.* Webster, 1992), and 3) franchise agreements whereby retailers bought into a supplier's brand and formed single sourcing agreements with them. In exchange for the benefits of a strong brand identity and product, retailers provide premises and a route to market for suppliers.

Figure 6.3 The theorised forms of 'Ownership' of supply chain stages.



1. *In-house.* Most of our firms that adopted the ownership approach did so by owning 100% of the supply chain stage they had chosen to integrate. Some of these stages had been acquired as part of a long-term strategy to vertically integrate. Three main reasons cited by interviewees for in-house ownership included; accident of acquisition, the need to ensure supply and the need to build knowledge of consumer behaviour.

The accidental acquisition of downstream or upstream supply chain stages was not uncommon. Firms integrating horizontally, purchasing industry competitors sometimes ended up owning vertical stages of the supply chain that the acquired firm previously owned. For example, Nutricia have pursued an aggressive

acquisition programme in order to achieve growth targets. This resulted in the organisation having excess capacity despite being active in three key markets (vitamins, clinical and baby food stuffs). Now the firm has developed an internal purchasing function, specialising in buying centrally and globally. The objective is to achieve economies of scale across world markets in all the different sectors in which the business operates. But in the process of growing its manufacturing base, Nutricia ended up with its own retail chain GNC. This has allowed Nutricia access to consumer information, which has helped it in its new product development activities.

The need to ensure supply has also led Nutricia to integrate upstream because supply has become a matter of strategic importance.

> *"One of the key drivers behind vertical integration is the need for control. In order to make the high purity claims to reassure consumers of product quality, e.g. no genetically modified substances have been used, tight control over raw materials suppliers was essential. Nutricia have acquired firms that have strong R&D histories – there's a strong American influence here which is affecting the way the UK market is being developed. These firms set up joint ventures with seed growers (suppliers) in order to develop and patent specific types of grain. Nutricia holds several patents on raw materials developed in this way. Therefore, it should be duly noted that some of the suppliers, which are not part of Nutricia are part of the holding company Royal Munico."* (Nutricia)

Knowledge of consumer behaviour was cited in the Nutricia example as a primary reason for not selling the GNC retail outlets. Purchasing patterns and consumer profiles could be built. Also as these retail outlets sold competitor products, sales trends of competitors can also be observed.

> *"...the drive towards vertical integration is requiring a different type of thinking. Nutricia UK are still thinking as a manufacturer and not as a retailer."* (Nutricia)

The changes bought about by downstream acquisition are summarised as;

- The increasing emphasis on marketing (and market orientation).
- Distribution networks are no longer the sole concern of a single business unit but the concern of the entire supply chain.
- There has to be a new approach to working capital and capital investment. Retail outlets are expensive and every business unit has to be profitable in its own right.

We examined our cases at the business unit level. This meant that interviewees often spoke of what we labelled in-house activities as if they were inter-firm relationships. This enabled us to gain an understanding of the advantages and disadvantages of ownership. The difficulties associated with building an internal company market as described above in the Nutricia example, were often highlighted.

> *"I tend to find that it's easier to deal with third party suppliers than in-house suppliers. I guess that in my experience they* [in-house suppliers] *tend to view us more as colleagues and less as customers."* (Federal-Mogul)

However the advantages to be gained from vertical integration are clear to those that have pursued this approach to the supply chain. They can be summarised as follows:

- Cost savings - economies of scale across the supply chain can be capitalised upon.
- Timeliness - timing can be better planned and managed and changing to customer needs can be quicker (existing literature suggests that ownership of supply chain stages actually reduces the ability of a firm to be flexible and quickly respond to changing customer needs *(c.f.* Blois, 1972).
- Control - costs and customer service can be more accurately controlled.
- Knowledge - learning how to better deliver to and serve its customers.
- Growing markets - firms must be flexible and must change quickly, adapting to market shifts/developments.
- VI is appropriate because of the current excess capacities within the firms (which are often a result of mergers and acquisitions).

2. *Strategic Alliances.* In some cases, the partnership between a supplier and its customer takes the form of an entirely new venture, what Webster (1992) labels a true strategic alliance. One of the essential features of a strategic alliance is that it is intended to move each of the partners toward the achievement of some long-term strategic goal. According to Devlin & Bleakley (1988, p.18),

> *"Strategic alliances take place in the context of a company's long-term strategic plan and seek to improve or dramatically change a company's competitive position."*

Another important characteristic of strategic alliances is shared objectives and a commitment of resources by both parties. This usually means a substantial financial commitment. Seven of the companies interviewed stated that they used strategic alliances as part of their supply chain configuration. However, none of the firms interviewed indicated that a strategic alliance was *'typical'* of the way they carried out their business. For example, Blackfriar's Paints formed a joint venture (JV) with one of their suppliers of raw materials. The key objective of the JV was to develop architectural paints; a highly specialised product for a niche market. Without the shared technical expertise between the two companies this new product development exercise would have been considered too costly and too risky for either company to take on alone.

One of the firms interviewed was actually the result of a strategic alliance. Beta UK is a distributor that sources and supplies canned foods and dried pasta and noodles for UK supermarkets. Established in 1981, Beta UK is the result of a joint venture between two leading canned food companies – Heinz (a US food manufacturer) and Beta (an Italian food manufacturer). Servicing the own label market, Beta UK imported tinned tomatoes from Beta Italy and so created a new channel to market for their products overseas. Beta UK worked closely with UK supermarkets in what they describe as a triumvirate open relationship. They act as the middleman between the producer and the supermarket. This removes the supermarket from any conflict when negotiating product specifications and pricing usually associated with supermarket/manufacturer relationships.

3. *Franchise Agreements.* Franchise agreements have been a successful alternative in many cases. Some widely cited examples include McDonalds fast food outlets, BodyShop cosmetics retail and Clarks Shoes retail. In common with strategic alliances, franchise agreements require financial commitment and form part ownership ventures between the two parties. Unlike strategic alliances, where the ownership can be developed on any basis that the parties might agree, franchise agreements tend to be divided into the ownership of fixed assets (held by the franchisee) and the ownership of the brand and image (held by the franchiser). An example of such an agreement is illustrated by Clarks Shoes,

> "*we provide agreed levels of support through advertising and brand promotion..... we also provide front of shop materials, point of sale materials, that sort of thing. In terms of profits.... We sell to them* [the franchisee] *at a certain value and whatever they decide to sell above the RRP* [Recommended Retail Price] *that's their decision. They generally get encouraged to keep it at the same price as a normal* [wholly owned] *Clarks shop.*"

6.2.4 Supply Chain Configurations Found

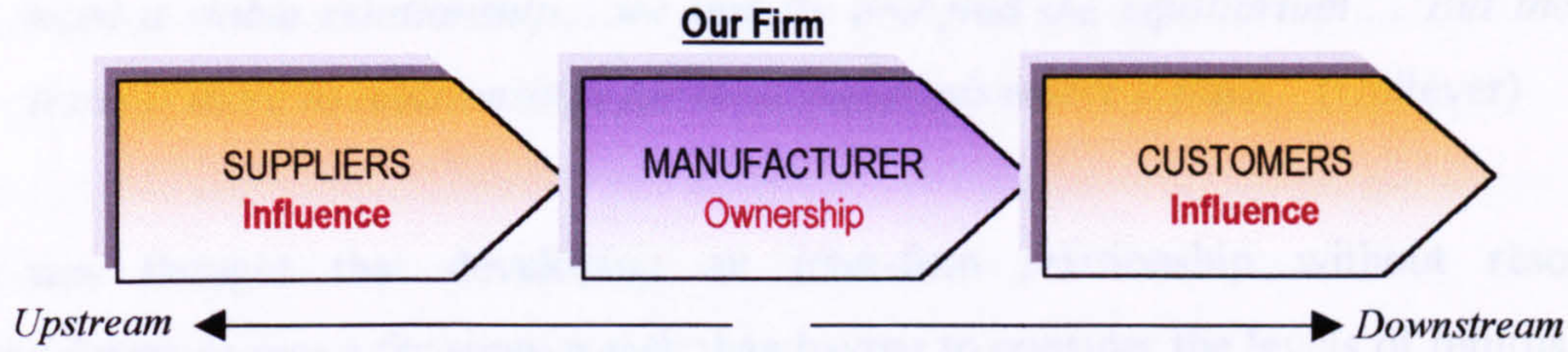
So far we have discussed the nature of the three approaches to supply chain configuration. Now a further level of complexity is introduced as we consider the effect of the chosen approach dependent upon direction, i.e. upstream or downstream. At this point we revert back to the taxonomy of supply chain configurations and consider the structure as a whole (Chapter 4, p.121). We explore the theorised relationships between market orientation and business performance. We seek to identify the different factors that may make a supply chain configuration successful in one situation but unsuccessful in another.

6.2.4.1 Influence Upstream & Downstream

The influence supply chain included firms with strong, long-term inter-firm relationships both upstream and downstream of the supply chain. Upstream influence was found to exist with raw material and component suppliers. Whilst suppliers were

often categorised as tier 1, tier 2 or tier 3 suppliers, all suppliers were involved with inter-firm relationships within this supply chain configuration. Equally, downstream customers included retailers, wholesales and business-to-business customers. In all cases our firms were involved with the manufacture and/or assembly of products and as such were labelled as having ownership of that supply chain stage.

Figure 6.4 The Influence Supply Chain



There was a 50:50 split between the numbers of high and low performance firms adopting this supply chain configuration. The nine high performance firms that comprise this group cover a wide range of industry sectors (Table 6.1). The majority saw their core business as manufacturing or assembly. Four pairs of high/low performance companies adopted this supply chain configuration. There were no retailers in this category. The nature of their business positions them at the end of the supply chain. They are, therefore, categorised as *'ownership downstream'*.

Table 6.1 A summary of high and low performance firms integrating through influence upstream and downstream.

High Performer Firm	*Key Product Line*	*Low Performer Firm*	*Key Product Line*
Bae	Aviation components	***TRW***	Aviation components
Time TV	Multi-media training	***Video Arts***	Multi-media training
Kellogg's	Breakfast cereals	***Weetabix***	Breakfast cereals
Best Foods	Convenience foods	***Beta***	Convenience foods
Silicon Systems	Military equipment	***Parsons Blackfriar's***	Paints & wood coatings
Federal-Mogul	Car components	***Hichrom***	Separation science equipment
Cadbury's	Chocolates	***Napier Brown***	Sugar
Unilever	Deodorant	***AstraZeneca***	Ethical pharmaceuticals
Cannon Avent	Consumables	***SSL***	OTC pharmaceuticals†

† Over The Counter (OTC)

Firms adopting the influence supply chain expressed a general belief that relationships built within the supply chain were for the benefit of all parties. They spoke widely of co-operation and commitment between firms and many examples were cited.

However, the firms involved with inter-firm relationships were aware of the amount of resource they could and often did consume. Interviewees spoke of the difficulties in creating a balance between a cost-efficient and beneficial relationship. As one interviewee observed,

> *"We have a tension in the business all the time. The purchasing people wanting to go transactional and the product development/supply chain people want a stable relationship....we just try and find the equilibrium.... But the trend is more to relationships for those materials where it pays."* (Unilever)

It was thought that developing an inter-firm relationship without resource considerations was a far simpler task than having to consider the levels of returns that might arise from the said relationship. For example, Weetabix have a very strong relationship with their wheat grain providers. Farmers are contracted over many years (some have supplied Weetabix for as long as twenty years) to grow crops specifically for Weetabix. Weetabix also have a policy of local supply. Yet compared with Kellogg, Weetabix is a low performance company. Kellogg also adopts the influence supply chain configuration but its relationship with its suppliers is very different. Kellogg form long-term relationships with corn suppliers but often use agents who buy on the open market and seek price and quality advantage from the global marketplace.

Quality was often mentioned as a driver of relationships. As one Unilever interviewee commented,

> *"...quality is a key feature on both sides of the supply chain."* (Unilever)

Here the interviewee refers to upstream and downstream as *'both sides'* of the supply chain. Other drivers were identified by interviewees as being key to their decision to build long-term inter-firm relationships. They included,

- switching costs,
- customer satisfaction,
- competitor action,
- core competencies,

- industry sector,
- cost efficiencies,
- the nature of the product.

However, the nature of relationships was often different depending on whether that relationship was with an upstream supplier or a downstream customer.

Influence Upstream: Relationships with suppliers generally demanded high levels of co-operation, commitment and trust. Frequent and open communications were considered a vital component where suppliers were involved to the extent of partaking in the research and design of new products or materials. The management of such a relationship requires specified resources but also allows the firms involved two important advantages: 1) each firm was free to focus on their own core competence, and 2) each firm was in a position to take advantage of the trading partner's core competence and resulting cost efficiencies. Unilever provide an example of this, observing,

> *"...the supply chain* [personnel] *keep a permanent interaction with the suppliers on a day to day basis...and R&D would tend to use the same suppliers in 90% of projects. If we had to bring a new supplier on board for R&D we'd certainly set up a special task force involving R&D and our supply chain and possibly purchasing"* (Unilever)

Building a new relationship was considered to require additional resource over and above that required for maintaining an established one. Interviewees also spoke of the risks inherent in committing resources to a new relationship. There was a feeling of '*better the devil you know*'. Individuals often felt more comfortable committing resources and creating long-term contracts with organisations with which they had previous experience. Interestingly, in three of the low performance companies adopting this supply chain configuration, it was reported that personal relationships built through repeat transactions with suppliers, had led to the gradual accidental development of long-term relationships. In these cases firms had not set out to identify a trading partner to build a long-term relationship with. There was no policy

of relationship building within the firms and no agreed objectives towards which they were working.

The high performance firms generally seemed more aware of the difficulties associated with building and maintaining long-term relationships. They had a good understanding of the dynamic nature of such relationships. These firms also scored more highly on their appreciation of openness and communications in key areas. That is not to say that information was entirely freely available but rather that proprietary information was available on a *'need to know'* basis. This openness and co-operation also extend to the sharing of fixed assets and facilities where appropriate. Federal-Mogul provided an example of this,

> "...[with our suppliers] *a generalisation would be that we are at least halfway towards a relationship... some suppliers even rent space in our warehouse for the product that he hasn't yet invoiced us for but that at some point we will use. That type of supplier would, even if it's a commodity product, would always get the chance to meet a market price.*" (Federal-Mogul)

Firms also recognised the need for different relationships with different suppliers. Seven firms used a tiered supplier system whereby a pre-defined scoring system allowed firms to label their suppliers as first, second or third tier. The scoring system is typically based on three key areas:

- the number of approved suppliers available to the firm,
- the level of switching costs likely to be incurred if the supplier had to be changed,
- the level of openness that should be pursued by the parties and the nature of the information that could or could not be shared (based on competitor action[74]).

Only one firm was observed to have formed a long-term relationship with a supplier of goods that could be described as a commodity. This was Weetabix and their grain supplier relationship. All other upstream relationships recorded under this supply chain configuration had some reason for wishing to influence their trading partner.

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[74] Competitors often share raw materials suppliers. For example, Unilever and Proctor & Gamble both source from the bottling suppliers for their fabric conditioner ranges.

Influence Downstream: The drivers of downstream relationships in this supply chain configuration were similar to those cited as drivers of upstream relationships. This was illustrated by Unilever,

> "*...we've chosen in most of our distribution operation to outsource. We don't want to operate* [distribution] *because it's not cost effective. But also it* [distribution] *is customer facing. Because of this we've chosen not to do a one off buy...we'll agree a strategic alliance or long-term relationship, a three or five year contract. This way we can take greater control over the customer-facing end without taking on the costs...*" (Unilever)

What was different to the upstream examples of influential relationships was the increased emphasis on customer orientation. The importance of influencing customer facing supply chain stages was considered pivotal to this supply chain configuration. Firms that now outsourced downstream stages that had previously been dealt with in-house or that had developed long-term relationships where transactional relationships used to exist, stressed the importance of focusing on their core competencies and using partnering company's competencies in order to better satisfy their customers. Information shared in these relationships tended to be consumer focused. For example, Best Foods (a food manufacturer) used detailed information provided by retailers on purchasing habits (through loyalty card data), sales, stocking levels and merchandising. EDI links facilitate automatic re-ordering levels. Regular contact between sales personnel at Best Foods and buying staff of customers such as Tesco, Asda and Sainsbury form part of a consumer focused supply chain.

Market Orientation & the Influence Supply Chain. The marketing function was recognised by most firms as being of importance to the supply chain configuration. The objectives of delivering customer satisfaction, monitoring customer needs and creating customer value were all identified as being fundamental in creating customer orientation. One of the ways in which firms sought to be customer oriented was by building up a relationship directly with consumers. This relationship, they felt, also gave them a higher degree of influence in the inter-firm relationship they formed. Listening to Kellogg discuss their segmenting strategy we can begin to understand their level of customer orientation and how it is driven by their supply chain

configuration. They are acutely aware of the added value derived from branding, the importance of this to the consumer and the consequent leverage this gives them within a downstream inter-firm relationship. Their slogan picks up on this, announcing '*if it doesn't say Kellogg's on the packet it's not Kellogg's in the packet'*. They have a long-term relationship with their brand loyal consumers, about which they have gradually built knowledge over the years. This is demonstrated by the way they target key customer groups. They clearly define the market they are in and focus resources on serving it to the highest level.

> *"...we're in rice and corn...there are of course sectors that we're not playing in which include muesli, speciality products like Scott's Porridge Oats. We focus on life style – you have a children's section, adults section and then you have adults basic, adults luxury – Crunchy Nut Corn Flakes would be a luxury and Corn Flakes a basic...that allows special pricing differences for special products – Special K with red berries would be an example."* (Kellogg)

Consumer information has led Kellogg to identify new opportunities in the RTEC (Ready To Eat Cereals) market resulting in the introduction of Frosties bars, the Snacks bar, the Coco Pops bar,

> *"...because we recognise that peoples' eating styles are changing. They're not sitting down to have breakfast...".* (Kellogg)

This knowledge and understanding of the market place affects the entire supply chain. To ensure such information is of benefit to the entire supply chain, appropriate information must be shared on two levels. First it must be easily and readily accessible within the organisation (i.e. between functions). This enables firms to co-ordinate demand forecasts with production scheduling requirements. It also means that information is available to the individuals responsible for managing inter-firm relationships. This brings benefits for the second level - information sharing with appropriate supply chain partners. Interestingly the high performance firms adopting this supply chain configuration provided much more evidence of inter-functional co-ordination than low performance firms. Low performance firms were particularly

poor at sharing information about customer experiences between other functions and understanding how the different functions within the firm could contribute.

This high level of inter-functional co-ordination found in the high performance firms has been aided by the rapid introduction of co-ordination technology. Using co-ordination technology, in the case if Kellogg the Manugistics system, they are able to centrally record, plan and control supply chain activities making uniform information widely available across company functions and, where appropriate, between supply chain firms.

> "*We would take all the demand information and feed it into our system and that would come up with a production schedule, which is then fed into our plants ....it then goes back to our suppliers.*" (Kellogg)

Because of Kellogg's position within the supply chain (as a manufacturer), knowledge has to be built on two levels. At one level they must understand the *consumers* needs and wants. They must identify a need and then offer a solution to fulfil that need i.e. RTEC for fast, easily accessible breakfast snacks. Equally, they need to understand and satisfy their *customers*. The distinction between *customers* and *consumers* is an important one. In the past many manufacturing firms have been so focused on their consumers i.e. shoppers, that they have failed to listen to and act upon customer needs i.e. the subsidiaries or agents that take delivery and which are ultimately the route to market; the route to the consumer. Integrating downstream through ownership of retail outlets would move many manufacturers far beyond their resource capabilities and core competencies. Forming long-term relationships with retailers allows them to influence factors that will affect consumer's purchasing habits. Retailers take ownership of the goods and thereby have full control over merchandising. Shelf space, positioning, special promotions and pricing are all beyond the control of the manufacturer *unless* they are in a position to influence the retailer. Manufacturers are able to do this when they listen to customer wants. For example, Kellogg has been working on a long-term project with Asda to create a win:win situation for both firms. This has resulted in increased market orientation and business performance for both firms.

One of Kellogg's current objectives is to increase their business performance through cost reduction. One area they have identified for this is stock. The objective is to '*go stockless*', so Asda were persuaded to take more frequent deliveries. This meant increased resources to deal with deliveries and a consequent decrease in business performance. The firms sat down together to develop a mutually beneficial approach to deliveries that ultimately benefited the consumer. By delivering to Asda's central regional depots instead of direct to store, Kellogg were able to move to minimal stock levels and Asda were able to take daily bulk deliveries, purchasing greater volumes in '*a single hit*' and thus enjoying bigger discounts. This brought benefits for the consumer too as Asda were then in a position to pass on discounts to their customers.

Business Performance & the Influence Supply Chain. Taking a balanced scorecard approach to business performance (Kaplan & Norton, 1992) we asked interviewees not only about the financial performance of their business unit but about new product success, sales growth, customer retention and brand equity. Finally we asked how their business unit created shareholder added value (Rappaport, 1981). When we initially selected the high performance/low performance matched pairs we had to rely on published data. The only available published data was financial (turnover, profit, ROA). It was therefore interesting to compare the balance scorecard data with the financial data. With the exception of AstraZeneca and TRW Systems, all firms in this category that were selected as low performers did indeed report low performance for new product success, sales growth and brand equity. But nearly half of the low performance firms reported high levels of customer retention. The low performers had little comment to make on shareholder value. Their main focus in this area was on cost reduction.

The high performance firms that adopted this supply chain configuration reported high levels of new product success, sales growth, customer retention and brand equity. They also reported high levels of shareholder value created by the firm. Firms were asked how shareholder value was created in three key areas; growth, returns and risk. Replies shared common themes with the balanced scorecard topics and included market development, market penetration, new product development, mergers and acquisitions to achieve growth. Returns increased largely through cost saving exercises, which frequently involved supply chain configuration considerations

including increased outsourcing, improved efficiency (value re-engineering) and higher margins on products. Firms cited specific examples of business performance improvement exercises.

The Kellogg/Asda relationship noted above, illustrates one way in which firms sought to influence their business performance through the building of long-term relationships. Kellogg are learning from this relationship and forming similar agreements with other key customers such as Tesco and Sainsbury. By working with firms on stocking and sales levels Kellogg have reduced the number of deliveries required at the same time as increasing the volumes delivered. As Dr. Thaker, the Demand Fulfilment Development Manager at Kellogg, commented,

> *"..we're taking an extra day of stock out, and some of these customers are taking stock that represents £500,000 just in cereals, so by finding a way of taking a single day's stock out...if you took 3 or 4 days worth of stock out we're talking millions....they reckon it cost something like £30 million to build a regional distribution centre and about £8 million to run it on an annual basis – they're now saying 'we're retailers, not warehousing businesses' and they're looking for third party service providers to run it. Quite basically they're looking of ways to save costs....and we're doing the same."*

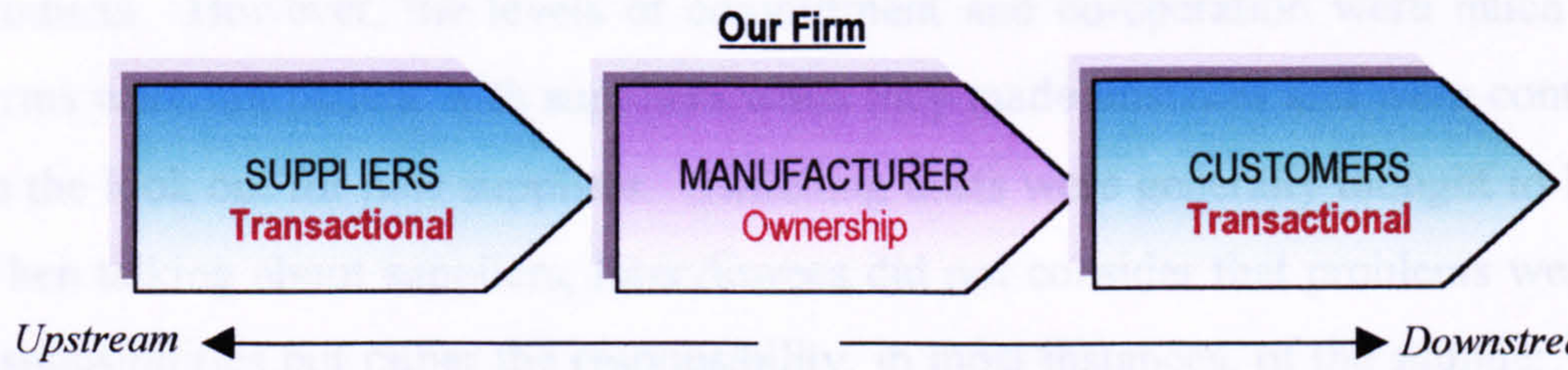
This exercise has created added value for the customer (Asda) and offers them the opportunity to pass such savings on to the consumer, making them more competitive, or on to their shareholders through increased business performance.

6.2.4.2 Transactional Relationships Upstream & Downstream

The transactional supply chain included firms buying and selling on the basis of price, quantity and delivery agreements. No inter-firm relationships existed upstream or downstream. Upstream transactional relationships were found to exist with raw material and component suppliers where components were considered a commodity product. As with the Influence supply chain configuration, downstream customers included retailers, wholesales and business-to-business customers. And again in all

cases our firms were involved with the manufacture and/or assembly of products and as such were labelled as having ownership of that supply chain stage.

Figure 6.5 The Transactional Supply Chain



Three out of the forty firms interviewed adopted this supply chain configuration. There was no common industry sector amongst them, however the products being purchased in all our examples were commodities (milk, sugar, fabrics, cotton, chemicals, salt). Furthermore, all firms adopting this supply chain configuration were low performance firms (Table 6.2). The interviewees were all aware that they had business performance problems. Not surprisingly market share and financial performance figures mapped out a clear picture for them. What was perhaps more surprising was their willingness to link the lack of performance on both the business performance and market orientation front with their supply chain configuration.

Kraftfoods was the only company that had a dedicated supply chain manager. He had wider responsibilities than focusing purely on the confectionery sector and caution must be taken in implying that the performance of Kraftfoods is purely down to their supply chain relations. Other micro and macro environmental factors have had a significant impact, i.e. group strategy, stakeholder interests etc. Table 6.2 below lists the three companies that adopted the transactional supply chain configuration.

Table 6.2 A summary of high and low performance firms integrating through transactional relationships upstream and downstream.

High Performer Firm	*Key Product Line*	*Low Performer Firm*	*Key Product Line*
None		***Bristol Myers Squibb***	De-odorant
		Essant	Footwear
		KJS Kraftfoods	Chocolate

Transactional Relationships Upstream. The levels of trust in transactional relationships did not seem to differ significantly from those expressed in influential relationships upstream. Firms described suppliers as being generally open in their dealings with them, making reliable promises and being knowledgeable about their products. However, the levels of commitment and co-operation were much lower. Firms were not patient with suppliers when they made mistakes and were continually on the look out for new suppliers. Switching costs were generally thought to be low. When talking about suppliers, interviewees did not consider that problems were joint responsibilities but rather the responsibility, in most instances, of the supplier. When asked about personal relationships between buyers and suppliers they suggested that they were to be discouraged. Personal relationships were generally thought to get in the way of good negotiations. One interviewee commented,

'*You never buy because you like somebody*' (Essant)

Negotiations tended to take place around price, though because of supply difficulties, in the instance of Bristol Myers Squibb, it was sometimes based purely on delivery times. Communications were limited between supply chain stages. There was no evidence of either power or leadership in these relationships.

Transactional Relationships Downstream. Levels of commitment and co-operation downstream were slightly higher than those found in upstream transactional relationships. However, they were still lower than those found in long-term relationships. As with upstream relationships, there was little evidence of the existence of leadership, though Bristol Myers Squibb indicated a slight tendency towards supportive leadership. In this instance BMS were prepared to react to feedback and coaching provided by their customers. Both Kraftfoods and Bristol Myers Squibb were concerned about the details included in contracts and felt it important that the *i's* were dotted and the *t's* were crossed. They felt it important that the rights and obligations of the parties were '*spelled out*' in the contract and that the terms of the relationship was explicitly discussed.

There was no evidence of any of these firms possessing power in their downstream transactional relationships. All our firms were manufacturers dealing with retailers.

They were all strongly of the opinion that power lay with the retailer – their customer. However, whilst their ability to influence the retailer and exercise reward or punishment on the retailer was virtually non-existent, all firms considered that they were important suppliers to their customers (what Gaski & Nevin (1985) labelled *"perceived coercive power"*). All three firms considered that their customer would incur significant switching costs should they wish to identify an alternative supply.

There was very limited information sharing between the parties. Whilst e-mail was used as a form of communication, the use of co-ordination technology was basic. As BMS explained, whilst they did use EDI (Electronic Data Interchange) when such orders were received, these were regularly amended by fax or telephone.

Market Orientation and the Transactional Supply Chain. All three firms demonstrated poor competitor orientation and poor inter-functional co-ordination. They were very much production led in their approach to customers and consequently ended up trying to sell whatever they could make. A good illustration of this is Essant's approach to sales. Because of the seasonal nature of their key product range (slipper sales are very seasonal, peaking in autumn and Christmas), they outsource the sales function using agents. This enables them to control the sales function as a variable cost instead of a significant fixed cost. The management of agents was reportedly *'a real problem'*. Sales agents have proved difficult to monitor and control. Their motivation was observed to be '*sometimes limited'* and their priorities to be '*different'*. But Essant feels trapped into using sales agents because it is one way they can reduce their costs. They commented,

> *"...retailers want to buy on price but we feel that the consumer wants to buy on quality and we make quality products."* (Essant)

Cheap imports have flooded the market and crushed Essant's traditional market. This mismatch between the perceived needs and wants of the consumer and the evidential needs and wants of the customer have created a significant problem for Essant. Forming long-term relationships with their downstream customers could have perhaps helped them predict this change in the market place.

This supply chain configuration provided other vignettes regarding lack of customer orientation. Bristol Myers Squibb has had problems with providing their customers with the goods they requested because of upstream supply problems. They link these two key aspects themselves, observing,

> "*we have unhappy customers because of our supply chain problems*" (Bristol Myers Squibb)

This has become such a serious issue for Bristol Myers Squibb that it has resulted in the threat of '*de-listing*' by major customers. Asda (one of BMS's key customers) called in BMS last year and named them as one of their worst three suppliers. BMS have problems committing to delivery times. These problems with supply have regularly resulted in Asda running out of stock and have arisen from the increased speed of turnaround, resulting from new and successful product launches. BMS's comments were that in the past they have been too consumer focused and not customer focused enough. They have now identified the need to develop the manufacturing process so that it becomes more flexible and, therefore, can react more quickly to its customers changing demands.

Inter-functional co-ordination seemed hampered either by the difficulties experienced in implementing co-ordination technology or the lack of existence of such technology. For example, BMS, the largest SAP customer in the world, introduced this software application suite two years ago to their purchasing department. The objective of the programme is to allow visibility between functions of stock, work in progress and materials requirements. There have been difficulties with training which is both costly and time consuming. As noted previously, stock ordered by EDI continues to be regularly amended by phone or fax. The BMS interviewee commented,

> "*...our customers speak a different language to us*" (Bristol Myers Squibb)

Pressure from customers demands shorter lead times, changes to methods of transaction and changes to quantities and packing requirements. SAP is gradually facilitating these improvements and this is resulting in the identification of the need for downstream long-term relationships at BMS.

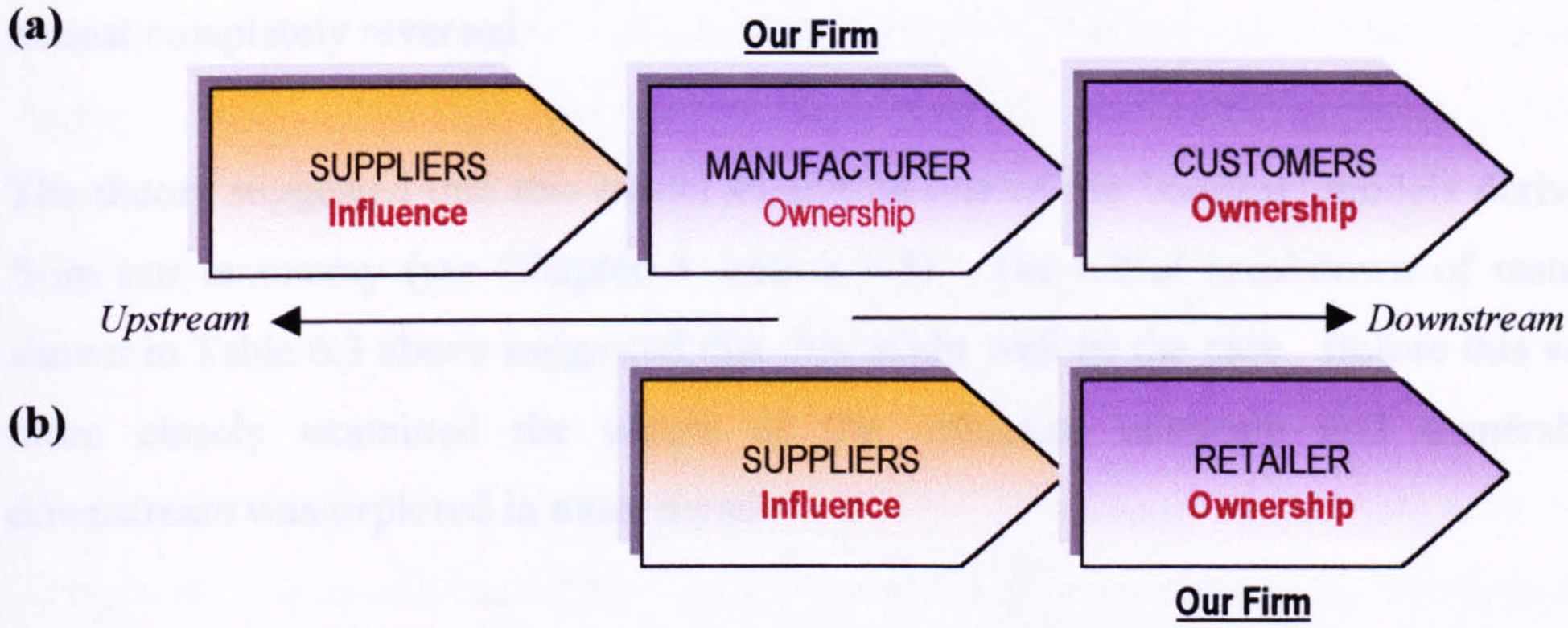
Business Performance and the Transactional Supply Chain. All our firms had been selected as part of the matched pairs sample as low performance firms. This result was reflected in the self-reported business performance results by these firms. All three firms reported that their ROA, ROE, new product success, sales growth, customer retention and brand equity was no more than 25% better than their competitors, whereas their matched pairs typically reported anything between 41% and 55% improvement on competitor performance. Only one firm reported high levels of customer satisfaction.

The ability to create shareholder value was not rated highly by any of this group. However, two out of the three firms stated that their firm did go someway to creating shareholder value through new product development. But as we have seen through the BMS example, successful new product launches can create their own set of performance problems when the supply chain configuration in place is inappropriate to deliver what customers want. Part of BMS's problem lies in their success in understanding their consumers' needs, but the inability to identify the needs of their customers. Customer's priorities are dependent on turnover periods. BMS's supply chain cannot cope with the demands and changing priorities of the new products. Asda is offering leadership here (*c.f.* Schul, Pride & Little, 1983). If leadership were being offered to other supply chain members, perhaps BMS's business performance would be increased. Asda is offering them the opportunity to pursue a role of supportive leadership.

6.2.4.3 Influence Upstream & Ownership Downstream

The Influence/Ownership supply chain included firms implementing long-term relationships upstream that had taken ownership of downstream supply chain stages. The positioning of the firm within the supply chain provided us with one dominant group of firms adopting this supply chain configuration (see Figure 6.6 (a) below) all of which were positioned centrally in the supply chain through a history of manufacture and assembly. A single case that was positioned at the end of the supply chain as a retailer also adopted this supply chain configuration (see Figure 6.6 (b) below).

Figure 6.6 The Influence/Ownership Supply Chain



Eight of our firms adopted this supply chain configuration. Seven of the eight were identified at the sampling stage as high performance firms. Seven of the eight were involved in the manufacture of goods. Whilst two of the seven manufacturers in this group had integrated downstream into retailing, one high performance retailer who had no history of manufacture was also found to have adopted this supply chain configuration (see section 6.2.4.1). Again the firms in this group were not specific to a single industry sector or product type. They were as diverse as pharmaceuticals and footwear.

Table 6.3 A summary of high and low performance firms integrating through influence upstream and ownership downstream.

High Performer Firm	*Key Product Line*	*Low Performer Firm*	*Key Product Line*
Akzo Nobel	Paints & wood coatings	***Alpha***	Bitumen
Safestyle	Windows		
Clarks	Footwear		
Tesco	Grocery		
Glaxo Welcome	Ethical pharmaceuticals		
Jones Chromatography	Separation science equipment		
Nutricia	Vitamins & supplements		

The changing profile of supply chain configurations was well illustrated by one of the firms in this group. Clarks Shoes were traditionally a shoe manufacture with a 175 years history of manufacturing in the UK. Over the past 10-15 years they have moved more and more to outsource the manufacturing of their shoes and now focus on the retailing of shoes through a series of high street shoe shops trading under the Clarks brand. As recently as 6 years ago 70% of the manufacturing output from Clarks came

from its own factories and 30% was sourced overseas. Now that situation has been almost completely reversed.

The theory suggested that this model should be one of the '*success*' models derived from our taxonomy (see Chapter 4 section 4.5). The initial breakdown of results shown in Table 6.3 above suggested that this might well be the case. Before this was more closely examined the nature of the influence upstream and ownership downstream was explored in more detail.

Influence Upstream. Levels of trust, co-operation and commitment were high. Clarks provided some good examples of relationship focus, commenting,

> "*..we do generally have a relationship with our suppliers, we are committed to between 50% and 60% of their production...We, as a customer, have provided our suppliers with machinery to help them start up.*" (Clarks)

As can be seen, Clarks have endorsed their commitment to their suppliers through the contractual commitment over the medium to long-term and through financial commitment by investing in capital equipment. But this was no philanthropic exercise for Clarks, as they observe,

> "*...we adopt a partnership effect. We certainly don't chop and change suppliers. ...in the shoe industry the perception is, when you speak to people outside of Clarks, that we only work with the best footwear suppliers... We are conscious of the quality of our products and that was always a big issue when we outsource.*" (Clarks)

This observation underlines the key motivation behind the Clarks effort. They invest in a long-term relationship so that they can enjoy the returns of guaranteed quality, which is vital to their branding and positioning in their various markets.

Alpha deviated from the other firms in this group. Whilst admitting that their suppliers did not make false claims, they felt that their suppliers would not make a special effort to help them in times of shortage and that promises made by suppliers

were not always as reliable as they might be. When asked why they thought this might be the case, the response was, *'it's the nature of the industry'*. This is perhaps further verified by the fact that the matched pair company to Alpha (Shell), adopted the Transactional/Ownership supply chain configuration (Section 6.2.4.6) and made no attempt to foster upstream relationships as they stated, *'because that's the way the industry operates'*. [75]

Levels of co-operation with upstream suppliers were also high with only two exceptions, Alpha and Safestyle. Alpha cited the limitations posed by their industry sector but the Safestyle case was very different. Safestyle formed a relationship with upstream suppliers who were providing them with commodities. As the UK's most successful manufacturer of windows and doors, they have formed long-term relationships with upstream supplies in order to ensure quality and continuity of supply. Safestyle claim that because they are purchasing a commodity (plastic powders), they have less need to co-operate with suppliers, suggesting that this is only necessary where high tech or high specification products are being purchased. Therefore, when purchasing plastics, if there is a problem with supply, the supplier can be persuaded to take responsibility for solving that problem alone. At the same time they accept that both sides must still be prepared always to make co-operative changes as and when the need arises. In this case we see that co-operation is not absent, but takes a different form from that associated with other firms in this group.

All of the firms adopting this supply chain configuration demonstrated some form of leadership over their suppliers. They all made a big effort to spell out the rights and obligations of both parties in their contracts with suppliers. With the exception of Alpha and Safestyle, firms also persuaded suppliers to adopt their uniform procedures.

Power in supplier relationships was perceived to be an insignificant factor by interviewees, probably because all the firms in this group were large customers of the

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[75] Bitumen raw materials (crude oil) have to be purchased from countries (and usually governments) that own oil. Depending on the Bitumen manufacturing process adopted, different oils, available from an extremely restricted geographic region have to be purchased. Investment in processing equipment to convert oil into Bitumen is extremely high, therefore switching costs are high. Alpha endeavours to

suppliers they identified in the interview. This immediately put them in a more powerful position than their suppliers. However, a few of the big brand manufacturers (and it is literally a handful according to Tesco's Supply Chain Director) do have power. Speaking about the Coca-Cola Company the Tesco interviewee conceded,

> *"Coke decide the price of Coke, we just sell it"*

Whilst some firms were aware of the difficulties in replacing suppliers most firms spoke of some form of supplier selection procedure. Akzo Nobel for example, detailed the procedure of scoring suppliers against a very specific set of criteria before they were included on a short list and finally on an '*approved supplier*' list. They also spoke about the continuous monitoring of suppliers on the approved list.

The other point regarding power raised by interviewees in this group was the need to avoid single source agreements (*c.f.* Macbeth, Ferguson & Neil, 1994). Nutricia provided a good example of the typical reasons behind such a company policy.

> *"...even if the relationships are long-term, Nutricia tries to use multiple sources. The somewhat unpredictable nature of the raw material quality (because of the weather primarily), and because the products require such pure natural ingredients, it is deemed appropriate to spread the risk and ensure supply."* (Nutricia)

Firms stressed the importance of not having total reliance on a single supplier and the effect that such a position might have on their negotiating position and ensuring a quality supply. They also conceded that in '*certain circumstances*' (usually where the investment by at least one of the parties was high) single sourcing might be unavoidable.

Communications tended to be high quality, frequent and bi-directional with a high level of information share. The exceptions to this last point were again Alpha and

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develop relationships where ordinarily none would exist. The Alpha interviewee commented that politics makes anything other than a purely financial relationship with suppliers very difficult indeed.

Safestyle. Whilst other firms had invested in co-ordination technology Alpha and Safestyle limited the use of such technology to e-mail but stressed the usefulness of this as a communications tool. The use of e-mail was thought particularly important by firms dealing with overseas suppliers where time differences were significant. Alpha and Safestyle both spoke of information share as being restricted to a '*need to know*' bases. No other firms in the group highlighted this point.

Ownership Downstream. The form of ownership downstream varied. Akzo Nobel, Safestyle, Jones Chromatography and Alpha sold directly to the end user through a team of in-house sales operatives. In these cases the end users were often what was categorised as '*Trade*'. These are difficult industries to classify, as the end user is not necessarily the consumer. For example, Alpha makes bitumen that it sells for roads directly to construction companies such as Tarmac and Hansons who lay the roads. The roads are owned by the government, paid for by the taxpayer and used, sometimes by non-tax payers. So these supply chains are short but not simple because of the nature of the industry. For our purposes this form of ownership was classed as in-house.

The second form of ownership is dependent on the positioning within the supply chain. Tesco is a grocery retailer. They have no history of manufacture. They buy in goods from many different suppliers and offer hundreds of different product lines to consumers through retail outlets and Internet shopping. Again, for our purposes this form of ownership was classed as in-house.

The third form of ownership was that achieved through a deliberate integration policy. Nutricia, historically a manufacturer, has purchased retail outlets in which it sells not only its own vitamin and supplement range (manufactured in-house) but also those of its competitors.

The forth form of ownership was partial ownership – the Franchise agreement. Clarks shoes adopted this approach together with the more traditional 100% ownership of retail outlets as part of a multi-channel approach.

Finally there was a unique and perhaps more unexpected approach to ownership from Glaxo Welcome regarding ethical pharmaceuticals. This heavily regulated industry prevents the organisations selling directly to the end user. Ethical pharmaceuticals have to first be approved by a government agency as accepted treatments for the NHS and then prescribed by doctors for end users. Doctors can be *'informed'* about the applications, benefits and disadvantages of the various drugs at the local surgery level, but they cannot be *'sold'* to. They can only be informed. Glaxo have overcome the problem of forward integration by developing their own team of *'on the ground nurses'*. These Glaxo staff work both in hospitals and within the community supervising the use of drugs and providing vital consumer information to their company. The summation of this approach must be that by providing this level of support for doctors in the administration of treatments, it may mean that doctors are more likely to prescribe Glaxo drugs.

The reasons cited for downstream ownership were uniform. They provided the firm with a direct contact to the end user, which provided valuable marketing intelligence.

Market Orientation and the Influence/Ownership Supply Chain. These firms had a high level of customer orientation. They were aware of the need to understand the consumer's needs and wants and with the exception of Alpha, had monitoring systems in place. Tesco refer to this process as their *'Plan – Do - Review'* culture. Customer actions were also closely monitored in several instances. Probably the most complex example of this is the Tesco loyalty card, recording every item sold to individuals every time the card is handed over in exchange for incentives which benefit the individual's own purchasing habits (see section 6.2.2, p.159).

When asked about how a firm's drive to satisfy customer needs had impacted on their firm's supply chain configuration, Clarks provided a typical answer,

> *"...we've moved from a predominantly manufacturing base to a much more retail responsive supply chain. Before we used to make shoes and then try and sell them, now we're trying to make the shoes in response to somebody wanting them."* (Clarks)

Downstream ownership was thought to have increased market intelligence and to have made such market intelligence more widely available within the firm. This in turn has affected inter-functional and inter-firm co-ordination. Again, this group of firms demonstrated a high level of inter-firm co-ordination. Tesco specifically identified this area as being *'critically important'*. Akzo Nobel stressed the significance of mangers regularly visiting customers. Equally, the importance of both ends of the supply chain understanding the consumer can bring benefits for the entire supply chain. Tesco highlighted this point.

Tesco worked in partnership with the manufacturer of a fruit drink 'Sun Delight'. The manufacturer managed to persuade Tesco that they had identified a gap in the market for this new product that looked like a fresh juice drink (which would appeal to the health conscious purchasing parent) but was really a squash (which would appeal to the fashion conscious, taste conscious child). Tesco helped market test Sun Delight with the end result that it became one of the most successful new products launched that year. As the Tesco Supply Chain Director commented,

> *"...sometimes suppliers really know about the market'.* (Tesco)

Competitor orientation was also an important factor for this group. In one case it was found to be of fundamental importance to the supply chain configuration adopted. As the Managing Director of Jones Chromatography explained,

> *"...our core market is the pharmaceutical sector which has seen an inordinate number of mergers and acquisitions in the past 3-5 years. We have seen the demise of many of our independent distributors – they have been bought by big American companies who compete with us in at least one of our core markets. This has two effects, 1) we lose our distributor network altogether or at best work with them knowing that they are our competitors also and 2) the distribution companies become specialists. They need us more than we need them. They have logistics expertise but very little or no technical expertise so they don't do the best job of selling or supporting our products."*

This competitor action has resulted in Jones Chromatography integrating downstream through ownership.

Other competitor conscious actions recorded included a high level of discussion regarding competitors at board level and trying to create a niche to target customers for competitive advantage and create unique added value.

Business Performance and the Influence/Ownership Supply Chain. The business performance data collected during interviews confirmed the matched pairs sample divide on high and low performance. All seven firms in this group that had previously been identified as high performance firms, reported that their ROA, ROE, new product success sales growth and customer retention were at least 11% better than their competitors. Alpha, the only low performance firm to adopt this supply chain configuration performed particularly badly on new product success, sales growth and customer retention.

When interviewees were asked if they thought that business performance was influenced by the supply chain configuration adopted by their firm, all firms said that they thought it was. Clarks provided a typical answer to this question, linking the effectiveness and efficiency of the supply chain configuration to the cost of the business and, by implication, to the overall business performance.

> *"...the consumer is getting more and more demanding. They want more and more for less and less and while we try and cut costs everywhere we can. Certainly in the supply chain we try to cut costs in terms of physically moving products. But obviously the manufacturing is the biggest cost within the pair of shoes you're actually selling."* (Clarks)

When asked if this change in approach to the consumer had shaped the supply chain, the answer came back from Clarks,

> *"Absolutely, yes it has. What we have a mile down the road is, what was a warehouse, is now a distribution centre. It used to be there for long-term storage for all the factories in the south west of England. There used to be*

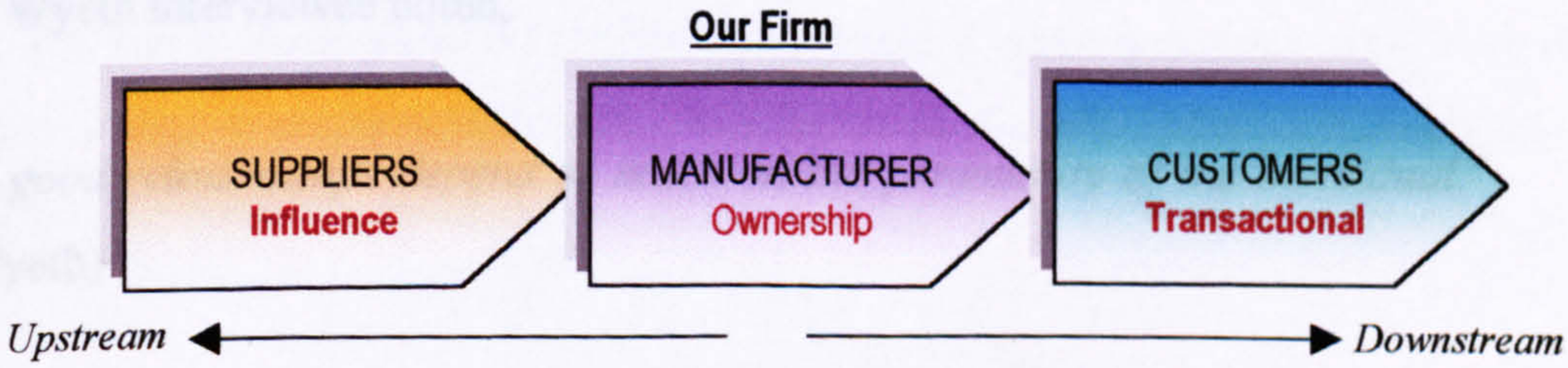
dozens and dozens of them. Now we're trying to control it whereby the containers come in from the Far East, it comes in just-in-time, gets unloaded and we know those shoes should be ready to be picked up within a week and go out to the shops. That's the ideal supply chain we're working towards."
(Clarks)

This group reached a consensus that shareholder value could be enhanced by cost reduction approaches to the supply chain and efficiency within the supply chain. None of the firms suggested that they would endeavour to improve their performance by changing ownership to relationship as a method of integration downstream. Market development, market penetration and new product development were all identified as areas where growth created shareholder value. None of the companies in this group described themselves as being risk averse. Shareholder value was considered an important part of business performance. All but two of the firms in this group were publicly listed companies or part of a group that was publicly listed. One of the two was preparing for floatation in the near future.

6.2.4.4 Influence Upstream & Transactional Relationships Downstream

The Influence/Transactional supply chain incorporated what we labelled '*supplier focused*' firms. These firms formed long-term relationships with suppliers upstream but sold their products downstream on the basis of price, quantity and delivery agreements through transactional relationships. No inter-firm relationships existed downstream. As with the Influence supply chain configuration, downstream customers included retailers, wholesalers and business-to-business customers. In all cases our firms were involved with the manufacture and/or assembly of products.

Figure 6.7 The Influence/Transactional Supply Chain



Four of the forty firms interviewed adopted this supply chain configuration. Three of the four formed part of the low performer sample. Again there was no commonality of industry seen across the group and there were no pairs of firms that had adopted this supply chain configuration (Table 6.4). All the firms in this group were involved in the manufacture of goods.

Table 6.4 A summary of high and low performance firms integrating through influence upstream and transactional relationship downstream.

High Performer Firm	*Key Product Line*	*Low Performer Firm*	*Key Product Line*
Wyeth Brothers	Ethical pharmaceuticals	***Jackel International***	Baby Equipment
		Trupart	Car components
		Scandinavian Windows	Windows

Our theory suggests that this model should be one of the least successful models because, by having transaction relationships downstream it would be difficult for firms to build an understanding of their customer base and competitor actions. The initial breakdown of companies into high and low performance groups did indeed suggest that the Influence/Transaction model was less successful.

Influence Upstream. Relationship focus upstream was very much in keeping with the patterns of upstream relationships found in other supply chain configurations (Sections 6.1.1 and 6.1.3). Levels of trust, commitment and co-operation were found to be high. Scandinavian Windows demonstrated slightly lower levels of commitment and co-operation than the other firms in this group saying that they were not particularly patient when their supplier made mistakes that caused them problems. Neither were they particularly concerned about their supplier's profitability. Conversely, Wyeth, Jackel International and Trupart interviewees spoke of the existence of trust and openness in their relationships with suppliers. As found in Section 6.1.1, the importance of the role of individuals in a relationship was raised. As the Wyeth interviewee noted,

> "*…good relationships depend so much on the personality of the individual.*" (Wyeth)

There was evidence of leadership upstream, illustrated by Jackel International. Because of the nature of raw materials used in the manufacture of their baby equipment range, sourcing has become an external function. The raw materials used require high levels of expertise, as safety levels for different materials are stringent.[76] Research & Development costs into the properties and abilities/applications of these materials is prohibitive for Jackel International. Economies of scale are so enormous that it requires a specialist practice company operating internationally. Further, the raw materials supplier's knowledge is such that if Jackel International approaches them with a proposal for a new product, one of their suppliers can invariably source or recommend a suitable material. The nature of the business at this stage of the supply chain has fostered strong influential relationships where leadership has become an important factor. Jackel International also provides their partners with strong operations guidelines and encourages them to adopt their uniform procedures.

The firms in this group did not demonstrate strong evidence of power. There was little incidence of their ability to influence their suppliers' policies, or of reward and punishment in order to affect supplier actions. Perhaps this was because the relationships upstream were long-term and power seemed an inappropriate tool to exert influence.

Information share between firms was high. Wyeth had the lowest level of information share. Information flows were considered to be bi-directional by all firms and the quality of information was generally thought to be high. Wyeth was the only exception to this rule complaining that suppliers were not always timely with their information.

Firms found e-mail an extremely useful communications tool and MRP software was used by Wyeth and Jackel International. Both companies spoke of the *'nightmare'* of introducing this co-ordination technology but felt that it made a genuine contribution to the availability of uniform information within the organisation. Jackel International summarised the quandary faced in their decision to introduce such technologies,

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[76] An understanding of the flexibility, toxicity and knowledge of the approval levels on heavy metal content etc. is required from suppliers of powdered plastics.

"...these systems are expensive and always have teething problems. If they're bought off the peg they never quite fit with the current operations of any particular business. If programmes are tailored then updates and new versions of the software are no use. If the software is tailor made, often maintenance is high and problematic and astronomically expensive. Technology and the extra data also introduce a further level of complexity to the way the unit operates. Having said that, the basic guiding principles being the motivation for implementing such a system are absolutely sound."

(Jackel International)

Transactional Downstream. With the exception of Wyeth, transactional relationships downstream showed much lower levels of trust, commitment and co-operation. In the transactional relationships found in Section 6.1.2 trust had remained high, but for this group of companies there was little evidence of its existence. Firms said that they would not or could not go out of their way to help their customers. They also thought that their customers were not particularly knowledgeable about the products. There were concerns also about a lack of openness between the trading parties. The Wyeth interviewee commented,

"...again, some markets are OK and other markets...we know they're hiding things from us" (Wyeth)

Both Jackel International and Wyeth demonstrated limited channel leadership behaviour downstream. But as discussed earlier in this chapter sometimes the intention to create long-term relationships is very different from realities encountered when attempting to implement them. Reference the example of Boots the Chemists cited by Jackel International (Section 6.2.1, p.156) this meant that long-term relationships were never actually achieved.

In common with firms adopting transactional relationships (Section 6.1.2) no evidence of power in downstream relationships was found. Reasons suggested by interviewees for this phenomenon included nature of the industry, their position in the supply chain and that the customer always had the power.

Communications with downstream parties were limited. Wyeth provided the best examples of information share but Trupart and Scandinavian Windows both expressed concerns about information being passed by customers to competitors. Generally communications downstream were very informal though Wyeth was the only firm to have made an effort to change this. Their interviewee commented,

> *"...that's what we aim for, putting things down in detail, but we don't always achieve it. We lack discipline in that area."* (Wyeth)

However, both Trupart and Wyeth did consider that the information they did share was of a high quality, being credible and accurate. The co-ordination technology used in this information share was limited, though Jackel International did have EDI lines with their major retailers for automatic re-ordering levels. The companies in this group were all of the opinion that they were not taking full advantage of technologies available.

Overall the companies in this group seem to view transactional relationships downstream as a bad thing. They seemed aware of the potential advantages of developing long-term relationships with their customers but two things were happening. In order to develop their products they were very consumer focused and not customer focused (as was the case with Wyeth and Jackel International), or they felt that they simply did not have the resources to do more for customers. This we labelled the *'fire fighting approach'* as all resources were focused upstream, sorting out supply problems and working with suppliers.

Market Orientation and the Influence/Transactional Supply Chain. The levels of customer orientation found in this group verified the problems raised by firms discussing their downstream transactional relationships. Market orientation efforts, particularly customer orientation, appear surprisingly limited. For example, Jackel International has a consumer help-line which their interviewee described as "*Jackel's only contact to the outside world*". Little consumer contact exists beyond this. Customer contact is generally restricted to the relationship between sales representatives and buyers. The firms in this group were very aware of the

significance of creating customer value, but with such limited information share they seemed to have little idea of how to deliver.

Competitor orientation was low in all cases except that of Wyeth. Scandinavian Windows provided a response that typified those operating transactional relationships downstream. Their interviewee commented,

> *"...our products are unique. Nobody makes them like we do so we haven't really got any competitors."* (Scandinavian Windows)

Levels of inter-functional co-ordination were high for Wyeth but very low for the other firms in this group. Wyeth were particularly strong in the area of integrating functions to serve target markets – they addressed women's health issues providing two of the most significant products this century, HRT[77] treatment and the oral contraceptive pill. Wyeth, along with the other three firms in this group, were poor at involving high level functional managers in regular customer visits and sharing information about customer experiences between functions.

Business Performance and the Influence/Transactional Supply Chain. All the previously identified low performance firms reported low levels of business performance compared with their competitors regarding ROA, ROE, new product success, sales growth, customer retention and brand equity. Scandinavian Windows did report a very high level of customer satisfaction but this was the only criterion that they performed well on.

Wyeth, previously identified as a high performance firm, showed a strong performance on sales growth and customer satisfaction. With reference to new product success, the interviewee commented on the average time to market in the ethical pharmaceuticals sector – it typically takes twelve years for a single product to go from the development stage to the government approved product stage. Consequently new product success was reported to be average. Wyeth felt that shareholder value was an important consideration and had been most successfully

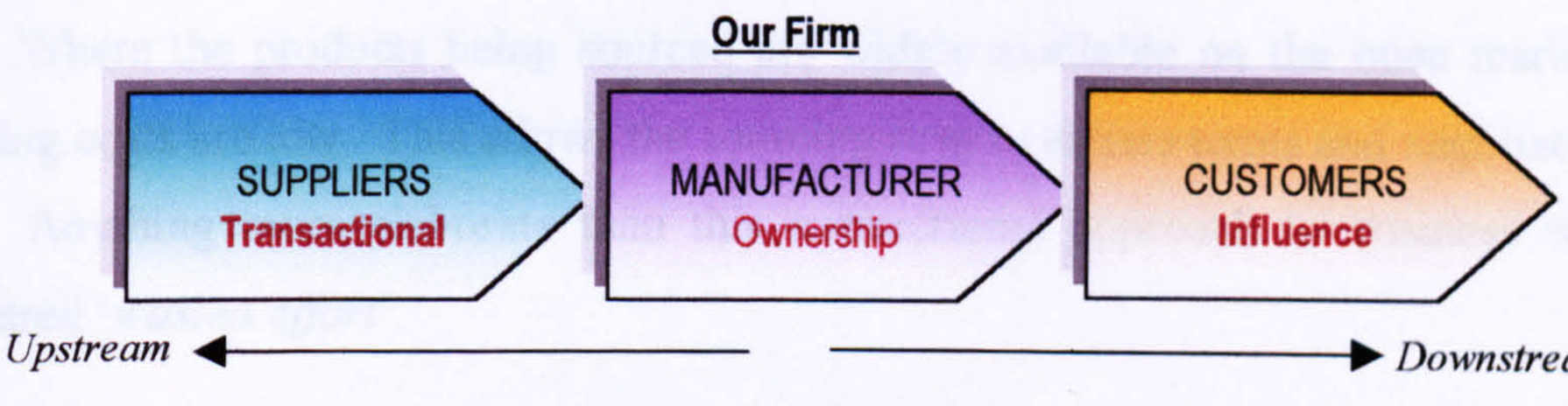
[77] Hormone Replacement Therapy

created through their merger and acquisition activities over the past ten years. Other firms suggested shareholder value should be created through new product development and efficiency engineering but all admitted that they were fairly poor at doing this. Only one of the firms in this group was a Plc (Jackel International).

6.2.4.5 Transactional Relationships Upstream & Influence Downstream

The Transaction/Influence supply chain included firms with transactional relationships upstream and long-term relationships downstream. In all cases our firms were involved with the manufacture and/or assembly of products and as such were labelled as having ownership of that supply chain stage.

Figure 6.8 The Transactional/Influence Supply Chain



There were four firms in our sample that were found to have adopted this supply chain configuration. Two of the firms had previously been identified as high performance firms and two as low performers. There were no matched pairs in this group. Again there seemed no pattern amongst the industry or product types. However, one commonality found was that all firms were purchasing commodities. Bearing in mind our findings regarding upstream transactional relationships in Section 6.2.4.2, this was an unsurprising result.

Our theory suggested that when upstream suppliers were providing commodity products a transactional relationship might be beneficial to business performance. Further, downstream influence should create a higher level of market orientation and thus further leverage business performance. In which case we might have expected all our firms to be high performers but this was not the case.

Table 6.5 A summary of high and low performance firms integrating through transactional relationships upstream and influence downstream.

High Performer Firm	*Key Product Line*	*Low Performer Firm*	*Key Product Line*
Mallinckrodt	OTC† pharmaceuticals	***Ernest Jackson***	Vitamins & supplements
Tate & Lyle	Sugar	***Schering Health***	Ethical Pharmaceuticals

† Over The Counter (OTC)

Transactional Relationships Upstream. Moderate levels of trust were reported in this group's upstream relationships. Commitment and co-operation were less prevalent with three out of the four firms admitting that they were continually on the lookout for new suppliers and that they were not patient at all when suppliers made mistakes. Tate & Lyle were typical in their approach to upstream relationships. They believe that it is inappropriate to invest resources to build long-term relationships when the products you are sourcing are commodities and are, therefore, generally purchased on price. Where the products being sourced are widely available on the open market, switching costs are low. This allows the sourcing firm to dictate terms and negotiate a price. Anything more elaborate than this transactional approach to business was considered '*wasted effort*'.

Leadership only existed in these upstream transactional relationships in one form - the details of the contract tended to be specific. In one case the supplier was encouraged to follow uniform procedures but there was no consideration of upstream suppliers possibly influencing firm policy or any provision for feedback or coaching between firms in these transactional relationships.

All firms in this group perceived their suppliers to be in a position of strong coercive power. Yet none of the firms felt that this power was exercised with any degree of frequency. When asked how the critical delay of delivery might affect their business, our firms were all of the opinion that it would present '*a little local difficulty*' but that the problem was not an insurmountable one. Whilst our firms felt that their ability to influence suppliers was extremely limited, they did not see this as a disadvantage. Again the prevailing attitude was one of, '*if you can't supply it on terms that are acceptable to us, we'll find someone who can.*'

Communications were very much in line with those found in other upstream transactional relationships. Communications tended to be one way - from the firm to the supplier and less detailed with formalities than communications found in influential relationships. One difference identified between high performance and low performance firms and their communications with suppliers was the level of information distortion. High performance firms were much better at managing information flows between the parties and reducing opportunities for distortion. This was not the case with low performance firms. The low performance firms invested resources in face-to-face interaction between the parties at managerial and sales team levels. A high level of telephone interaction was also encouraged but this was not backed up with other aspects typically associated with a long-term relationship, i.e. levels of commitment and co-operation were low, evidence of channel leadership was virtually non-existent. This suggests that high levels of communication in an unstructured environment might indeed be detrimental to the business agreement. Both low performance firms also admitted that the quality of communications was not always appropriate, recording particular difficulties with timeliness and adequacy of information share.

Co-ordination technology was evidential in upstream relationships but tended to be limited to e-mails for both low performance firms. One of the high performance firms (Mallinckrodt) did use an MRP system that helped them to identify quantities and timetables for supplies. This data was shared with suppliers as part of the price negotiations. The other high performance firm (Tate & Lyle) used SAP. As their interviewee described, the introduction of this technology had been part of a supply chain efficiency drive.

> *"...they've* [Tate & Lyle management] *done quite a lot of work on the supply chain, and production facilities are very efficient. Straight to the warehouse then straight to production. We have technology to enable us full visibility on this – SAP, which is a system of planning to deal with all goods in and out, all purchasing and sales. We are on our way, we are developing e-commerce. Today's e-commerce is really directed at Internet, and I'm not meaning just a web page. We're talking about things in the order of buying, selling all this through interactive multi-media."* (Tate & Lyle)

The impact of co-ordination technology has extended beyond the bounds of internal departments and has encompassed external suppliers who, whilst not involved in a complex long-term relationship, can be persuaded to conform to uniform practices through the adoption of co-ordination technology in dealings involving simple transactional relationships for commodity products.

Influence Downstream. Relationship focus downstream was stronger than that found in upstream relationships. Downstream firms were considered by our interviewees to be knowledgeable about the products they were purchasing. They also felt that they were patient when their trading partner made mistakes that caused them trouble. However, they did feel that, should their trading partner be in a strong bargaining position, that partner was likely to take advantage of the situation. Again this was typical of the influential relationships found downstream in section 6.2.4.1.

Both the high performance firms demonstrated stronger participative leadership than the low performance firms in this group. Equally the direction of leadership for the high performance firms was upstream – provided by the retailer and acted upon by the manufacturer. The direction of leadership for the low performance firms was downstream – from the manufacturer to the retailer.

Perceived coercive power was high. However, exercised coercive power was comparatively low. Firms felt their downstream partners were in a position to have an adverse impact on their business but thought that this power was rarely exercised. They were also of the opinion that they could influence their downstream partners by providing finance/credit, business advice and inventory management assistance.

Communications with downstream partners were strong, though the pharmaceutical company, Mallinckrodt (a high performer) was less inclined toward information sharing than the other firms in this group. They cite the nature of their business as the reason behind this. They regard the '*wholesale*' nature of their downstream activities, in which they sell generic products (bandages, syringes, etc.) to hospitals, pharmacies and wholesalers as requiring minimal information share.

"...all they need to know from us is turnaround times, all we need to know from them is sales figures. The rest is done through consumer research, but that's on the product development side." (Mallinckrodt)

The level of formality of communications was slightly higher for the low performance firms in this group. High performance firms stated that whilst they did adhere to certain levels of formality they were less likely to have the parameters of their relationship written down in detail and that the expectations of their trading partners were not always specifically communicated in detail. The quality of communications was thought to be high by all firms.

Co-ordination technology was widely used downstream. Both the high performance firms in this group made use of EDI links downstream and spoke of the growing importance of e-commerce. Interestingly the firm with the highest use of technology downstream was a low performance firm, Schering Health. It should be noted that whilst the business unit we looked at for Schering Health was a low performer (compared with its pair, Wyeth Brothers), Schering Health was part of a large group of companies and the technology used was part of a group wide initiative. This was obviously bringing benefit to the business unit. Co-ordination technology found in this group included e-mail, the Internet, MRP and EDI systems. These firms felt that co-ordination technology was a significant factor in the development and maintenance of influential relationships downstream. One firm felt that technology has gone a long way in beginning to address the imbalance of power that for the past two decades has lain firmly with the retailer. Their interviewee observed,

"I think retailers have always been like that, screwing suppliers, but what they can both see nowadays is that by collective collaboration and strategic partnership they can both service each others needs, better than if it's driven purely by the retailers. ....looking at how we can maximise what we're doing together, ways of cutting out cost. ...there's so much pressure. We have to be more efficient so it's looking at a two-way thing. Well it's really threefold. Retailers are looking to put more pressure on the suppliers, the suppliers want to find more cost-effective ways of operating, and consumers are demanding better value, so you've a triangle of pressure. That's why I think management

has evolved; it's not revolutionary it's more evolutionary and strategic partnerships have come about. But I would venture to suggest that none of this would have been possible without some of the technologies we have available to us today." (Tate & Lyle)

The main advantages of such technology are thought to be, increased efficiency, cost-saving, streamlining opportunities and an ability to influence supply chain members through increased uniform information sharing facilities.

Market Orientation and the Transactional/Influence Supply Chain. The high performance firms were found to have a higher level of market orientation than the low performance firms in this group. Mallinckrodt and Tate & Lyle reported particularly high levels of customer orientation and both claimed that their strategies were driven by their beliefs in creating value. One firm linked the ability of a firm to serve its customers directly with the supply chain configuration adopted. Their interviewee commented,

"...in the business we're in it's the supply chain that will differentiate us really. I see it as a sales tool." (Mallinckrodt)

Mallinckrodt also report high levels of competitor orientation. They were very concerned with internal information share regarding competitors' strategies and their ability to react to competitor actions. Tate & Lyle also report high levels of competitor orientation but felt that the power of their key competitor (British Sugar) left them seeking out niche markets. By being able to offer a product derived from sugar cane, (where British Sugar can only offer a product derived from sugar beet), Tate & Lyle claim that their product is perceived by customers as a superior ingredient for baking. And as their representative observed,

"...*perception is seven tenths of the law.*" (Tate & Lyle)

This carefully guarded niche market has developed an almost friendly rivalry which they label '*co-petition*'. They carefully monitor each other but respect the subtle differences that the end sugar products offer.

The Tate & Lyle/British Sugar environment is very different to the competitor focus found in the pharmaceutical industry. Schering Health (in competition with Wyeth Brothers) has an almost fatalistic approach to their business in the contraceptive pill market. They see Wyeth as the market leaders and don't see themselves as a significant challenge. They have moderate to low competitor orientation. Their interviewee observed that they are not quick to react to competitor's actions; neither do they target customers for competitive advantage. Ernest Jackson reported the lowest level of competitor orientation out of all the firms in this group.

Both the high performance firms reported higher levels of inter-functional co-ordination compared with the low performance firms in this group. Mallinckrodt and Tate & Lyle attached significant importance to managers regularly visiting customers and the need to share that information between functions within their organisation. Ernest Jackson performed particularly badly on both these factors. Schering Health performed only slightly better than Ernest Jackson. Maybe this was because they saw their presence in this market as an ethical one rather than a purely profit driven one.

Business Performance and the Transactional/Influence Supply Chain. The business performance data collected during the interview confirmed the matched pairs high/low performance split. Both firms that had previously been identified as high performance firms reported that their ROA, ROE, new product success, sales growth and customer retention were at least 26% better than their competitors'. The low performance firms reported much lower levels of new product success, sales growth and brand equity than the high performance firms in this group. Tate & Lyle reported brand equity as their strongest performance criteria.

Perhaps the reason for Tate & Lyle's success is partially due to the nature of the sugar industry. This heavily regulated market not only dictates where (which countries) they must buy the raw sugar cane from, but also issues quotas limiting the amount of refined sugar they are allowed to sell. Their biggest competitor, British Sugar can achieve a lower cost base because their raw material is beet and not cane. Beet can be grown in this country and does not have to be shipped from ex-colonial countries, as cane must be. Therefore, British Sugar can always supply at lower prices than Tate & Lyle. Tate & Lyle must sell all their sugar in order to keep their quota. Under the

common agricultural policy they are encouraged to export and are compensated for sugar they cannot sell. In addition to this, the retail sector recognises sugar as such a valuable product offering to their customers that they are prepared to make a loss on the sugar they sell in an attempt to satisfy customers and provide them with a competitively priced alternative to beet sugar. The Tate & Lyle interviewee explained,

> "... *if you go into the shops, Asda or Tesco's, they're selling our sugar for 45p a bag. They're actually making a loss, they're buying it for £550 per tonne, so they're loosing approximately £100 per tonne.*" (Tate & Lyle)

Mallinckrodt accredit their success to a streamlined and efficient supply chain backed up by a large buying and logistics operation that enables them to achieve economies of scale globally. Schering Health, with a not dissimilar set up to Mallinckrodt, commented that their business unit performance reflected the limited importance of this market to them in their overall strategy. Their interviewee commented,

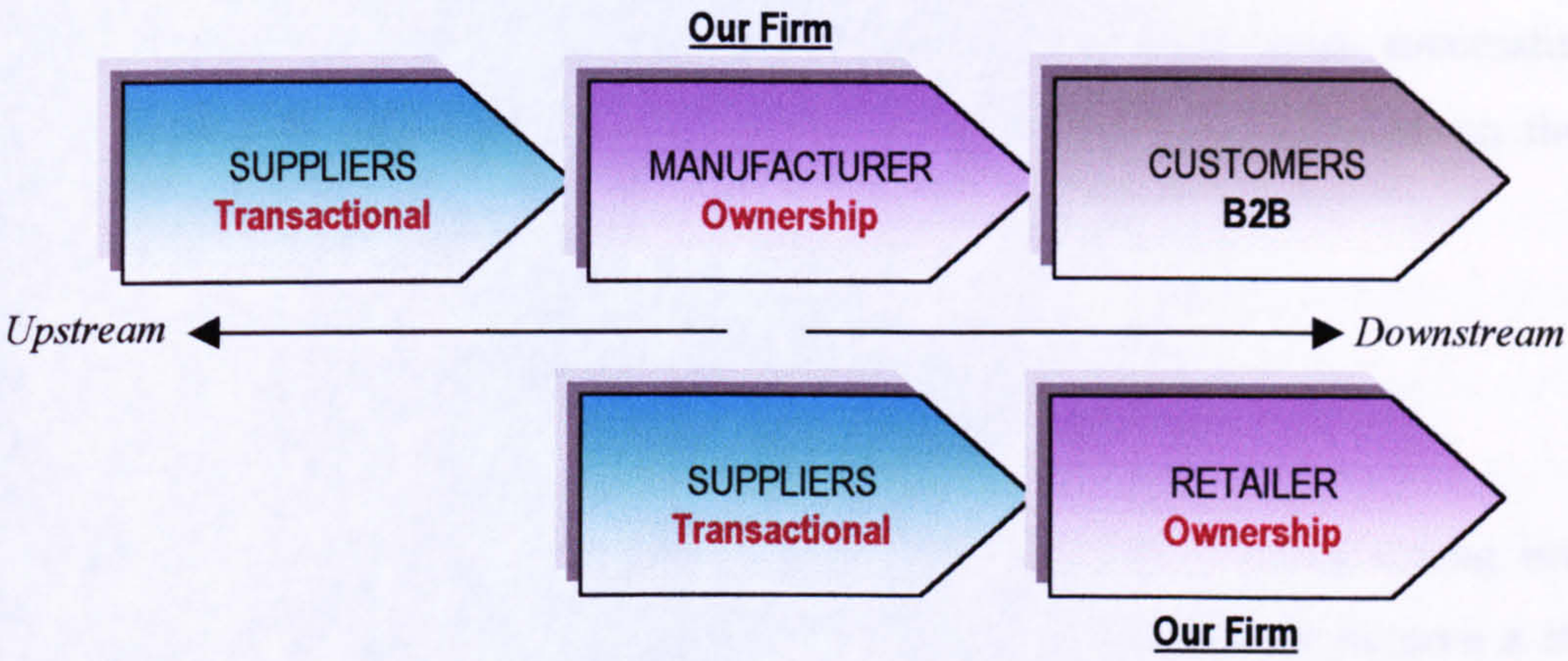
> " *in this country* [the UK], *it's the Beta-Blockers that matter. We know Wyeth's position and we accept that, but we do provide an alternative that there is a small, but easily accessible market for.*" (Schering Health)

All firms in this group specifically identified the role of the supply chain configuration in improving business performance. They also acknowledged that the theory, particularly where opportunities suggested the introduction of co-ordination technology, was much more straightforward than the practice of implementation.

6.2.4.6 Transactional Relationships Upstream & Ownership Downstream

The Transactional/Ownership supply chain included firm's transactional relationships upstream and ownership of downstream supply chain stages. Downstream customers included retailers, wholesales and business-to-business customers. In all cases our firms were involved with the manufacture and/or assembly of products and as such were labelled as having ownership of that supply chain stage.

Figure 6.9 The Transactional/Ownership Supply Chain



Three firms adopted this supply chain configuration. Industries covered by this group included construction, military equipment and grocery retail. One of the firms (Shell) was a high performance firm in our matched pairs sample, the other two were low performance firms. Our theory suggests that transactional relationships upstream might be an appropriate strategy in certain circumstances. Equally, ownership downstream might be appropriate in certain circumstances. Therefore, it was not surprising to find both high and low performance firms in this group.

Table 6.6 A summary of high and low performance firms integrating through transactional relationships upstream and ownership downstream.

High Performer Firm	*Key Product Line*	*Low Performer Firm*	*Key Product Line*
Shell	Bitumen	***Amivo***	Military equipment
		Somerfield	Grocery

Transactional Relationships Upstream. Relationship focus upstream was limited. Whilst all three firms demonstrated some degree of trust towards their trading partners, there was little evidence of co-operation or commitment with firms stating categorically that they were not prepared to dedicate resources to grow the other firm's sales and neither were they concerned about the other firm's profits. For example, Somerfield negotiate on price, quality and quantity. When asked why they did not choose to develop long-term relationships with suppliers, they responded by explaining,

> *"...if we interfered with the source, this would probably push up pricing and it would add to cost."* (Somerfield)

Retailers downstream felt that their upstream manufacturers had considerable power. Speaking of Heinz (one of the UK's largest and most successful processed food manufacturers), the Somerfield interviewee commented on the significance of their business to Heinz.

"*...we are a puddle in their ocean.*" (Somerfield)

This comment emphasises the value for manufacturers in building strong brands. Some branded products are '*stocked by force*'. Where manufacturers have a strong position in the market place, they are able to generate business and this, according to Somerfield, will,

'*...dictate that stock is there, in our retail outlets.*' (Somerfield)

According to Somerfield, the customer dictates 80% of stock. So, the manufacturer has a big effect on consumer choice. This also puts the manufacturer in a position where they are able to dictate price. As the interviewee commented,

'Heinz can dictate the price of baked beans for example, because they know I can't not have Heinz'. (Somerfield)

Having said this, the interviewee did acknowledge that most manufacturers appreciate that it is a *'two-way thing'*. If one firm always wins at the expense of the other firm, then eventually nobody wins. The retailer would go out of business and the manufacturer would lose a customer and a route to market. The opposite is also true. Retailers can no longer use their size and scale to pressure small manufacturers into unacceptable deals. This is largely due to the introduction of the Competition Commission. The Competition Commission is a totally independent organisation which has the power to fine firms up to 10% of their last three year's sales figures should they go against the commission's rulings. This, according to one retailer, is enough to kill most retail businesses. Companies treat the Competition Commission very seriously. Introduced in 1998 the Competition Act has cost UK businesses £7.5m in time and resources. This has been spent responding to the Competition Commission within the first twelve months of operations.

So where does the power lie in an upstream transactional relationship for more technical, non-FMCG goods? For the bitumen producer (purchasing oil) and the military equipment manufacturer (purchasing steel), whilst the perceived coercive power was reported as being moderately high, it was rarely exercised. Shell reported problems with the delivery of oil from overseas suppliers but suggested that this was often due to political reasons. Their representative specifically discussed the difficulties in dealing with overseas, government-owned organisations and suggested that long-term relationships, whilst very appropriate in certain situations, were '*out of the question*' in such a politically complex and highly regulated environment. Where we might have expected Shell (the only high performer in this group) to demonstrate an ability to influence their upstream suppliers, the opposite was actually reported. Again this lack of influence was associated with the nature of the supplier and the environment in which the business is conducted.

Leadership did not figure strongly in any of these firms' transactional relationships. Where leadership existed at all, it was in the direction of the supplier, with two of our firms (Shell and Amivo) providing operational guidelines to their suppliers and ensuring the rights and obligations of the parties were spelled out in the contract.

Communications between firms and their suppliers were in line with those found in other transactional relationships. Information share was moderate for Shell and Somerfield. Amivo was more open with suppliers but '*relevant*' information and little more. Communications for all our companies involved a high level of formality with the terms of the relationship being written down in detail and explicitly discussed. Shell and Amivo reported no difficulties with the quality of communications whereas Somerfield expressed concerns about the completeness and the credibility of some of the information they received from suppliers.

Co-ordination technology was limited to e-mail for both Shell Bitumen and Amivo. Somerfield did have EDI links and automatic re-order levels with large manufacturers including Heinz and Unilever. There were no discussions during interviews regarding business-to-business e-commerce for any of these upstream transactional relationships.

Ownership Downstream. As all the firms in this group owned downstream supply chain functions, there was no measure for relationship focus, leadership, power or communications. We asked firms to talk generally about the type of ownership they adopted, how they thought their position in the supply chain affected their approach to supply chain configuration and if they thought this configuration was likely to change in the future.

Somerfield (a low performer in our sample) wholly owns distribution operations and the retail outlets downstream. They have twenty-seven regional distribution centres (RDC's), but as their supply chain director admitted, this is more by default than design. It is thought that seven or eight RDC's would be sufficient to service all retail outlets. Their distribution network was described as archaic. It was also suggested that Tesco (see section 6.2.4.3), the highest performing firm in this industry sector today, have achieved this status because of their investment in their distribution structure. This investment has not only given Tesco advantages in their traditional retail environment, but has also afforded them scope to take advantages of the new '*clicks and mortar*' online shopping opportunities that Somerfield have simply not been in a position to do. Because Tesco have the underlying infrastructure to deliver on their virtual offering, customer satisfaction is high and new services in this developing sector have been a success. The Somerfield representative admits that distribution is their biggest cost, after people, observing,

> '*...if you get it wrong, it's an expensive mistake.*' (Somerfield)

Shell is an interesting case. The bitumen business unit (known as Shell Bitumen) has traditionally adopted a highly vertically integrated structure. From the North Sea platforms and pipelines to the refinery, Shell adopted either a full or part ownership structure. Perhaps one of the most famous examples of this was the Brent Spa platform that appeared so much in the news in 1997. This platform was part owned by Shell in a 50:50 joint venture. A typical pattern for Shell has been to form JV's for pipelines and in exploratory research. As the Shell interviewee commented,

> "*...the huge costs incurred in finding the stuff* [oil] *means JV's need to be formed.*" (Shell Bitumen)

But, the level of integration within Shell is now changing. There is a big effort to move towards vertical de-integration. The main driver behind this is an effort to reduce costs; selling capital and renting it back. Raw materials are increasingly bought on a purely transactional basis from overseas suppliers. This forces transactional relationships upstream because of international relations and politics (also see the discussion on Alpha, section 6.2.4.3). There are concerns within the company that this is not the right way to go, that this is a very short-term approach. One individual commented,

> *"...it feels like we don't think beyond 2001. Lots of businesses are dying or becoming commodities, how will customers pay separately for these services? – We have the same problems as the banks".* (Shell Bitumen)

Both Amivo and Shell cited the highly technical nature of their products as being the main driver behind downstream vertical integration. The need to work closely with customers in developing and delivering solutions meant more usual routes to market were not an option (i.e. wholesale, retail).

Shell Bitumen has been able to take advantage of the new opportunities created by the Internet, to improve their customer service offering. The technically sensitive nature of bitumen means that customers need a fast turnaround for the product and instant advice and information. Shell Bitumen has introduced EDI systems so that orders can be placed and traced simply and consistently. They have also created an online information service with highly detailed technical specifications regarding the different bitumen types and their application.

Somerfield are classified as adopting this supply chain configuration because of their position at the end of the supply chain. Retail, by its very nature, inevitably means ownership of downstream supply chain stages. Somerfield has been able to introduce loyalty cards and create the opportunity to learn about customer behaviour but there is a feeling that such benefits normally associated with downstream ownership have been problematic to the organisation. The only conclusion to be reached here is that Somerfield is a poor-performing company despite downstream ownership.

Market Orientation and the Transactional/Ownership Supply Chain. Both Amivo and Shell demonstrated strong market orientation. This was surprising as we would expect the high performance firm (Shell) to have a strong market orientation but the low performance firms (Amivo & Somerfield) to have a much lower market orientation. Shell and Amivo demonstrated strong customer orientation, stating that their objectives were driven by customer satisfaction. Both these firms had customer service monitoring systems in place and systematically measured customer satisfaction. Somerfield admitted they gave little attention to after-sales service or developing any competitive strategies around customer needs.

Somerfield demonstrated low levels of competitor orientation and inter-functional co-ordination. However, there was some evidence of customer orientation within this firm. Somerfield bought consumer research information from professional research institutions as well as managing and running their own customer focus panels whereby customers were invited to comment on product lines, merchandising techniques and pricing policy for stores at the local level.

The pattern for customer orientation was repeated with competitor orientation. Both Shell and Amivo felt they were able to react quickly to competitor's actions and that sales personnel shared information about competitor's strategies. Somerfield however, performed very poorly on the competitor orientation criteria. Their actions are described as *'fire fighting'* and not as responding to competitor's actions or targeting customers for competitive advantage.

The highest level of Inter-functional co-ordination in this group was achieved by Shell. Amivo demonstrated a lower level of inter-functional co-ordination. At Somerfield it appeared virtually none existent. Somerfield is an example of the problems typically experienced when firms fail to develop strong inter-functional co-ordination. They reported two key difficulties; 1) making information available across functions – this meant the information had to be easily accessible, relevant and in a useable format; 2) dedicating the necessary resources. Work was duplicated regularly and this provided massive opportunities for error. Somerfield cited the example of a typical product promotion.

> *"...somebody has to key the information about a single promotion 45 times so that everybody who needs to know has access to the information they need..."* (Somerfield)

Somerfield recognised this as a problem, stating,

> *"There are huge opportunities to reduce this through the introduction of IT. SAP – an integrated system, would allow us to link our front to back end system and make it visible to all the managers involved. The drawback is the initial cost for implementing such a system. I reckon £2-3m to purchase the system and about a further £37m to train personnel in the use of the system. Then....then you have the inevitable teething problems -- but it has to be worth it. It's definitely the way forward."* (Somerfield)

The only commonality between Amivo and Somerfield as poor performing firms in our sample seems to be that they both have a low level of inter-functional co-ordination. This is perhaps more surprising in a firm that is vertically integrated downstream, where one might expect information sharing and communications to be easier than between firms. It is difficult to make generalisations from just two firms but this is an area that requires further investigation.

Business Performance and the Transactional/Ownership Supply Chain. The high performer/low performer divide in the matched pairs sample was verified by the data collected for firms in this group. Shell performed between 26% and 40% better than its competitors in the bitumen sector on our six key criteria (ROA, ROE, new product success, sales growth, customer retention and brand equity). Shell considered themselves to have extremely satisfied customers and positioned themselves as market leaders. They considered their ability to deliver shareholder value to be high and had a clear approach with two key objectives driving this – new product development and cost reduction. Both these approaches had a bent towards increased outsourcing and building stronger, long-term relationships, as their recent venture for Research & Development demonstrates.

From 2001 R&D was to be contracted out. To-date this function has been carried out in-house through a branch of Shell known as *'Shell Global Solutions'*. Shell has committed itself to a long-term research programme with Nottingham University and feels its business performance will benefit from such a venture by increasing the range of services it can offer to its customers at the same time as decreasing costs. This project should mean that for a comparatively low cost, Shell would gain high returns for extra services. Nottingham University benefits too.

Somerfield was the poorest performer in this group rating itself less than 10% better than its competitors on our key performance criteria. This was not surprising considering Somerfield's low level of market orientation. Somerfield were making an effort to increase their market orientation but their chosen strategy was both costly and difficult to implement. As their representative explained, these efforts were detracting from their financial performance without yet showing any gains for non financial measures such as market share, customer retention or customer satisfaction. In an attempt to be customer oriented Somerfield collects customer information through loyalty cards. The interviewee raised two issues. One issue was the start-up and running costs of such a scheme, which were described by the interviewee as *'not insignificant'*. The second issue was the amount of information generated through the loyalty card scheme. It is so vast and so frequent in its delivery that the firm struggles to make effective use of it. It has also raised issues regarding the way Somerfield positions itself in the marketplace. Somerfield sees itself as an in-town retailer. As a consequence it sees its customer base as diverse and very much affected by location. This is reflected in the supply chain configuration. We discussed earlier the nature of their distribution system with its twenty-seven regional distribution centres. This is a costly and inefficient structure and has implications for both financial and non-financial measures. At store level, managers regularly complain about stock shortages and slow turnaround times.

Not surprisingly, Somerfield reported low levels of customer satisfaction and rated themselves as poor at creating shareholder value. They acknowledge Tesco as market leader and see themselves as *'way down the list'* when calculating their market share.

Amivo, whilst considered a poor performer compared with its matched pair sample (Silicon Systems), performed moderately well compared with all of its competitors, typically reporting an improvement of 11% over competitors on our key performance criteria. They had a clear approach to creating shareholder value through a programme of new product development, market penetration and cost reduction. Finally the importance of market intelligence was stressed. This was considered by their interviewee to be a significant factor in creating shareholder value and reducing risk to the organisation. This performance is perhaps a reflection of the customer and competitor orientation levels achieved by this firm.

6.3 Summary of Cases

Within our forty cases we found six supply chain configurations. Our theory suggested that the greater the level of integration downstream, whether that integration was achieved through ownership or long-term relationships, the greater that firm's market orientation would be. This suggested that ownership and long-term relationships might indeed be considered as isomorphic. Further, downstream integration, most probably because of its positive relationship market orientation, is associated with increased supply chain effectiveness. Thus we suggest that a firm demonstrating a strong market orientation behaviour is also likely to benefit from increased business performance. Indeed, in the majority of cases such firms were the high performer from the matched pair. Conversely, firms that pursued transactional relationships downstream faired less well on the market orientation and business performance criterion. They demonstrated distance from the market place, having a poor knowledge of their customer base (and reciprocal consumers). This lack of knowledge often resulted in dissatisfaction by downstream supply chain members with the supplier performance.

Upstream, the distinction between the integration approach and the level of market orientation and business performance achieved were less clear cut. Firms adopting both long-term and transactional relationships upstream were found in both the high and low performance groups. Indeed, the emphasis placed on interviewees for the need to de-integrated as a primary source of cost savings suggested that outsourcing

was likely to increase in the future. None of our cases adopted ownership upstream. These findings suggest that upstream supply chain configuration is strongly associated with the traditional efficiency perspective of supply chain management.

Transactional relationships were associated with high performance firms from our matched pairs, but only when they existed upstream. These tended to be firms that were purchasing commodities. Six firms in our sample adopted transactional relationships downstream. Only one of these was a high performance firm and this unexpected finding was explained by the high performance firm as being a peculiarity of their industry sector.

Generally, our suppositions were broadly found to be true. Some of our low performance firms (selected through a snowball effect by high performance firms) were, on the balanced scorecard analysis found to be not necessarily low performance firms but *lower* performance firms compared with their market-leader matched pair. This, however, did not conflict with market orientation findings. Where some firms scored moderately well on the business performance criteria, even if previously classified as low performance firms in the case selection process, moderate market orientation scores were also reported.

Finally, the high performance firms viewed the role of shareholder value as key to their strategic approach. This in turn had an impact on the supply chain configuration adopted and the success of its implementation. As one interviewee observed,

> *"...we have strategic responsibility for the supply chain but zero operational responsibility.... I mean, you can't do the two. The problem is how to bring strategy and operations together. You can't do strategy and operations at the same time. In my previous life I used to be the strategic research director here and I used to run the biggest research lab. You can't go from thinking about ten year research programmes to worrying about the guy who's just glue sniffed, who's going to get in the local news papers – they're different jobs."* (Unilever)

CHAPTER 7

Statistical Analysis and Findings

Introduction

This chapter presents the research findings of the main study using statistical analysis. As with the case analysis (Chapter 6), we begin by examining the nature of the three theorised approaches to the supply chain; transactional relationships, influential relationships and ownership. We then present the supply chain configurations found within our sample of forty firms. Each supply chain configuration is then examined in detail. This approach uses statistics to explore the dimensions of the supply chain configuration types found through factor analysis (Section 7.3), and discuss the advantages associated with summated scales (Section 7.4). We explore the hypotheses through descriptive statistics (Section 7.5) and within the limitations of the sample, hypothesis testing is carried out using discriminant analysis and measures of association (Lambda). This chapter concludes with the presentation of a model which summaries the principal relationships tested (Section 7.6).

7.1 Statistical Analysis

Research interviews began with a less structured introduction whereby interviewees were encouraged to talk openly about their supply chain configuration.[78] The second part of the interview adopted a structured approach whereby participants were asked to complete a questionnaire, the analysis of which is presented in this chapter. The questionnaire was divided into five sections. Section A was completed before the interview as part of the sampling procedure. This meant that the data could be quickly verified during the interview. Section B recorded the functions, supply chain stages and their resultant level of integration within the firm's supply chain for key product lines. Section C examined the types of relationships that existed upstream and downstream within the supply chain. Finally sections D and E recorded levels of market orientation and business performance at business unit level (Appendix 2).

[78] Chapter 6 presents the analysis of this section of the interviews.

Because of the complexity that vertical integration and relationship marketing literature suggests, and because we were interested in both upstream and downstream relationships,[79] the questionnaire was necessarily long and complex. Besides the problem this posed for data collection, it also created limitations for the statistical exploration of the data. However, through factor analysis and cross tabulations some interesting results were found. These have more relevance because they were collected in conjunction with qualitative data and the researcher has a better idea of the context in which to interpret these results.

7.2 Respondent & Sample Profiles

Respondents varied in the level of seniority and job title within our sample. Twenty-two respondents identified themselves as being in management positions whilst the remaining eighteen held the title of director. Titles varied from Administration Manager to Head of Business and Operations Director (Table 7.1). Because our research was concerned with analysis at the business unit level, extensive enquires were made to ensure the respondent with the correct knowledge was tasked with the completion of the questionnaire regardless of job title. Consequently job titles covered a broad spectrum. However, brief job descriptions provided at the interview revealed similar roles regardless of title.

Respondents were asked how long they had held their current position within the firm. This varied from six months to twenty-six years. 87% of respondents had held their current position for more than three years at the time of interview.

The sample design had required that we matched competing companies on business performance but we also asked respondents further details about their firms. Questions included the number of employees, the year the firm was established, their industry sector, if there had been a change of ownership in the last 10 years and if they were a public limited company or not.

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[79] Dyadic relationships are more typically the focus of research in this area.

Firm size varied by industry sector. Only five firms (13%) had less than 50 employees. The largest number of employees at a single business unit was 1500. A further twelve firms employed between 50 and 250 people and ten between 250 and 500 people. The remainder (30%) employed over 600 people. Overall 12 industry sectors were covered by the survey (Table 7.2). Three sectors stood out as being the most widely represented, light engineering (which included anything from aircraft components to separation science equipment components), FMCG goods and pharmaceuticals (which included both ethical[80] and OTC[81] goods). Of the 12 industry sectors represented by the survey, 8 sectors included single matched pairs of firms; baby feeding equipment, food stuffs, footwear, multimedia management training materials, personal care products, retail, vitamins & supplements and woodcare & finishes. The remaining industry sector was construction.

There was a fairly even spread over the year established, with 14 of our 40 firms being established between 1907 and 1970. The oldest firm in our sample was Clarks Shoes, established in 1840. The youngest firm in our sample was Silicon Systems, established in 1999. This is a joint venture company set up between two reputable and well-established firms (one in the UK and one in Japan). This gave us two interesting perspectives for supply chain configuration considerations. How might a traditional firm develop and change its supply chain to deal with the changing global environment based on its experience and current structure? Alternatively, how might a new firm with no *'baggage'* or history structure its supply chain for a global marketplace?

65% of firms in our sample had not seen a change of ownership in the past ten years. The remaining 35% had seen ownership changes through mergers and acquisitions or floatation on the stock market. Overall, publicly listed companies comprised 63% of our sample. The remaining 37% were private limited companies.

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[80] Prescription drugs (e.g. antibiotics)
[81] Over the Counter (e.g. antiseptic, aspirin)

Table 7.1 Respondent Job Titles

Job Titles	Frequency	Percent
Administration Manager	1	2.5
Category Manager	1	2.5
Development Manager	1	2.5
Director	1	2.5
Director of Supply Services & Logistics	1	2.5
European Supply Chain Manager	1	2.5
European Marketing Director	1	2.5
Financial Controller	1	2.5
Head of Business	1	2.5
Head of Distribution	2	5.0
Head of Purchasing	6	15.0
Head of Warehousing	1	2.5
Managing Director	6	15.0
Marketing Director	2	5.0
Sales Director	2	5.0
Senior Brand Manager	1	2.5
Supply Chain Director	5	12.5
Supply Chain Head	1	2.5
Supply Chain Manager	4	10.0
Technical Manager	1	2.5

Table 7.2 Industry Sectors Represented By the Survey

Industry Sector	Frequency	Percent
Baby Feeding Equipment	2	5.0
Construction	4	10.0
FMCG	6	15.0
Food Stuffs	2	5.0
Footwear	2	5.0
Light Engineering	8	20.0
Multimedia Management Training Materials	2	5.0
Personal Care Products	2	5.0
Pharmaceuticals	6	15.0
Retail	2	5.0
Vitamins & Supplements	2	5.0
Woodcare & Finishes	2	5.0

7.3 Data Simplification

There is some controversy concerning the dimensions of supply chain configuration and relative market orientation and business performance[82] (Chapters 2 & 4). This is mainly due to the eclectic nature of the research discipline from which this subject is derived. Thus, in order to conceptualise and measure the variables involved in supply chain configuration, a more integrated approach is needed, which takes account of previous research (*c.f.* Harrigan, 1985c). Table 7.3 presents the measurement scales and respective sources for 56 factors maintained in the factor analysis. It should be noted that, because of the small sample size, a factor analysis was carried out for each group of variables in Section C of the questionnaire. Additionally, descriptive statistics for each of these items are presented.

As previously explained, we were faced with a small sample of firms and a large number of variables[83] necessarily involved in examining inter-firm relationships. This suggested that the only context in which an Exploratory Factor Analysis (EFA) might be applied was as a confirmatory tool. By classifying variables into one of five theoretical groups – Relationship Focus (Group 1), Channel Communications (Group 2), Channel Leadership (Group 3), Channel Power (Group 4) and Market Orientation (Group 5), we were able to carry out an EFA on each group. As no existing scales for the measurement of co-ordination technology and business performance could be found, these theorised components were excluded from the factor analysis procedures.

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[82] For example, the economics and operations management literature focuses on the efficiency perspective and thus interprets supply chain configuration in terms of ownership of supply chain stages, whereas the marketing literature examines the supply chain from an effectiveness perspective and interprets supply chain configuration in terms of inter-firm relationship management.

[83] "*Regarding the sample size, the researcher generally would not factor analysis a sample of fewer than 50 observations, and preferably the sample size should be 100 or larger. As a general rule, the minimum is to have at least five times as many observations as there are variables to be analysed...*" (Hair, Anderson, Tatham & Black, 1998, p.373)

Table 7.3: Exploratory Factor Analysis: Factor Composition, Sources and Descriptive Statistics for 56 Questionnaire Items

Factor	Item	Source	Measurement	Mean	SD	(High Performer) Mean	(Low Performer) Mean
ELATIONSHIP FOCUS							
onfidence (Trust)	c1. times of shortage	Adapted from	5 point scale	3.54	1.29	4.03	3.08
	c2. promises reliable	Siguaw, Simpson & Baker (1998)	1 = Strongly Disagree	3.57	1.06	3.60	3.54
	c3. firm has product knowledge		5 = Strongly Agree	4.17	0.82	4.26	4.08
	c12. co-operative changes			3.40	0.97	3.34	3.46
Commitment	c7. patient with mistakes	Adapted from	5 point scale	2.67	1.35	2.94	2.81
	c8. dedicate resources	Siguaw, Simpson & Baker (1998)	1 = Strongly Disagree	2.92	1.18	2.66	2.68
	c9. problems are joint responsibility		5 = Strongly Agree	2.92	1.18	3.03	2.81
COMMUNICATION							
Information Share	c13. inform of changes	Adapted from	5 point scale	3.40	1.00	3.40	3.41
	c23. feedback from you	Mohr & Sohi (1995)	1 = Strongly Disagree	3.17	1.27	3.43	2.92
	c24. feedback to you		5 = Strongly Agree	3.15	1.21	3.37	2.95
	c26.5 technical support			3.11	1.15	3.49	2.76
	c27.1 timely			3.73	0.81	3.77	3.69
	c27.2 accurate		5 point scale	3.97	0.71	3.97	3.97
Quality	c27.3 adequate		1 = Strongly Disagree	3.74	0.73	3.77	3.70
	c27.5 credible		5 = Strongly Agree	4.00	0.67	4.09	3.92
	c27.4 complete			3.68	0.85	3.71	3.65
Formality	c25.1 terms written		5 point scale	3.25	1.25	3.40	3.11
	c25.2 expectations communicated		1 = Strongly Disagree	3.39	1.11	3.63	3.16
	c25.3 explicit relationship		5 = Strongly Agree	3.33	1.22	3.43	3.24
Frequency	c26.1 face-to-face communication		5 point scale	3.26	1.20	3.51	3.03
	c26.2 telephone communication		1 = Very Low Frequency	3.47	1.11	3.74	3.22
	c26.6 written		5 = Very High Frequency	3.06	1.11	3.14	2.97
LEADERSHIP							
Participative	c16. ideas not passed to managers	Adapted from	5 point scale	3.28	1.17	3.29	3.27
	c17. Do not allow input	Schul, Pride & Little (1983)	1 = Strongly Disagree	3.01	1.45	3.09	2.95
	c18. lack of coaching		5 = Strongly Agree	3.31	1.21	3.49	3.14
Directional	c20. provide guidelines			3.42	1.29	3.51	3.32
	c21. rights detailed in contract			3.61	1.25	3.54	3.68
	c22. uniform procedure			3.19	1.36	3.49	2.92

Table 7.3 continued: Exploratory Factor Analysis: Factor Composition, Sources and Descriptive Statistics for 56 Questionnaire Items

Factor	Item	Source	Measurement	Mean	SD	(High Performer) Mean	(Low Performer) Mean
POWER							
Ability to Influence	c30. raise prices	Adapted from	5 point scale	2.03	1.18	1.83	2.22
	c31. lower prices	Gaski & Nevin (1985)	1 = Not at All	2.32	1.64	1.94	2.69
	c34. change advertising		5 = As Much As We Want	1.97	1.27	2.03	1.92
	c35. change customer service			2.29	1.30	2.11	2.46
Perceived Reward Power	c28.3 advertising support	Adapted from	5 point scale	2.15	1.42	2.09	2.22
(based on reliability test)	c28.4 train personnel	Gaski & Nevin (1985)	1 = Very Little Capability	1.92	1.12	1.91	1.92
	c28.5 promotion materials		5 = Very Strong Capability	1.97	1.23	1.97	1.97
	c28.6 provide credit			2.08	1.16	1.91	2.24
	c28.7 give advice			2.40	1.16	2.31	2.49
	c28.8 inventory assistance			2.67	1.23	2.66	2.68
Exercised Reward Power	c29.3 advertising support	Adapted from	5 point scale	1.81	1.19	1.97	1.65
(based on reliability test)	c29.4 train personnel	Gaski & Nevin (1985)	1 = Very Low Frequency	1.57	0.93	1.71	1.43
	c29.5 promotion materials		5 = Very High Frequency	1.72	1.14	1.91	1.54
	c29.6 provide credit			1.60	1.04	1.51	1.68
	c29.7 give advice			1.69	0.97	1.74	1.65
	c29.8 inventory assistance			2.10	1.14	2.34	1.86
MARKET ORIENTATION							
Customer Orientation	d2. monitor customer need	Adapted from	5 point scale	3.63	1.13	4.45	2.80
	d3. based on customer need	Narver & Slater (1990)	1 = Strongly Disagree	3.75	1.10	4.45	3.05
	d4. driven by customer value		5 = Strongly Agree	3.75	0.87	4.10	3.40
	d5. measure customer satisfaction			3.30	1.14	4.05	2.55
	d6. after sales service			3.13	1.14	3.95	2.30
Competitor Orientation	d7. competitor strategies	Adapted from	5 point scale	3.08	1.21	3.75	2.40
	d8. respond rapidly	Narver & Slater (1990)	1 = Strongly Disagree	3.05	1.20	3.80	2.30
	d9. managers discuss		5 = Strongly Agree	3.30	1.09	4.10	2.50
	d10. target customers			3.38	1.19	4.25	2.50
Inter-functional	d11. visit customers	Adapted from	5 point scale	3.25	1.13	3.80	2.70
Co-ordination	d12. information share	Narver & Slater (1990)	1 = Strongly Disagree	3.33	1.00	3.80	2.85
	d14. contribution		5 = Strongly Agree	3.20	0.97	3.65	2.75

We started with well-validated measures taken from the literature (Appendix 4). The measures for trust, commitment and co-operation (which we labelled relationship focus), channel communications, channel leadership, channel power and market orientation had all been developed in line with recognised scale development procedure and had been empirically tested, producing positive results (Morgan & Hunt, 1994; S Siguaw, Simpson & Baker, 1998; Mohr & Sohi, 1995; Schul, Pride & Little, 1983; Gaski & Nevin, 1985; Narver & Slater, 1990). We then deferred to manager and fellow academics to provide face validity in adapting the scales to the context in which they were to be deployed (amongst UK based firms).[84] Despite this, 14 items did not pass the tests of EFA[85] and reliability tests (Table 7.4).

Table 7.4 The 13 items removed from the 71 questionnaire items during the refining process (EFA and reliability tests).

Group	*Item Removed*
Group 1: Relationship Focus	This firm does not make false claims.
Group 1: Relationship Focus	This firm is not open in dealing with us.
Group 1: Relationship Focus	We are continually on the lookout for another firm to replace or to add to our current supply chain.
Group 1: Relationship Focus	We're patient when this firm makes mistakes that cause us trouble.
Group 2: Channel Communications	We share proprietary information with this firm.
Group 3: Channel Leadership	This firm has a major influence in the determination of our policies and standards.
Group 3: Channel Leadership	Once this firm has transacted with us, they forget all about us.
Group 4: Channel Power	If this firm wanted you to change your customer credit policy, what is the maximum amount you would change?
	How much capability does your firm have to critically delay delivery?
	How much capability does you firm have to charge high prices?
	With what frequency does your firm critically delay delivery?
	With what frequency does you firm charge high prices?
Group 5: Market Orientation	Our firm's objectives are driven by customer satisfaction.

Groups 1, 2, 3, and 4 could be analysed adopting a single inter-firm relationship as the unit of analysis. This means that as our forty firms were asked to comment on their relationships both upstream and downstream, we had a record of eighty inter-firm relationships. However, eight of our firms reported no use of inter-firm relationships either upstream or downstream of their supply chain. This left us with a total of seventy-two relationships (N=72) that could be used, therefore, in the factor analysis. In order to provide validity for the relationships to be used as the unit of analysis in

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[84] Several of the scales had been developed and tested in the US and thus the language used to describe certain phenomena was not familiar to British based managers in the context of their UK businesses.
[85] Exploratory Factor Analysis

this context we had to assume that upstream and downstream relationships were independent of each other. We found no evidence to contradict this assumption.

Group 1 - Relationship Focus. This group included twelve items based on scales developed by Siguaw, Simpson & Baker (1998) to measure Trust, Commitment and Co-operation. The initial data set produced a solution of 4 factors with Eigen values greater than one. A refining procedure was used in order to arrive at the final data set. This procedure works as an interactive process in which the indicators that do not load on a single component or significantly decrease coefficient alpha are dropped. During this process one of the factors had to be renamed as a consequence of the withdrawal of 2 items from the original 12. Trust was renamed '*Confidence*' as the factor loaded on items describing a firm's faith in their partner's ability to carry out its supply chain function to a desired level. The items were a cross section of Siguaw *et al.'s* Trust and Co-operation scales (Table 7.5). Table 7.5 also includes the Eigen value, variance and coefficient alpha for each factor in this group.

Inspection of the scree plot and variance suggested that three factors with Eigen values above 1.1 should be retained and used as descriptors of variance in the data. Together these three factors accounted for 64% of variance in the data. The excluded factor accounted for just 8% of the total variance.

Of the three identified factors, two (*f1* and *f2*) presented acceptable values with coefficient alpha between 0.7 and 0.8 (Murphy & Davidshofer, 1988; Nunnally, 1978). As *f3* did not present an acceptable alpha it was not retained for further analysis (Table 7.6 identifies retained and removed items). Table 7.7 presents the three factors and their loading for the10 variables.

Table 7.5 Relationship Focus: Eigen-values, Variance and Coefficient Alphas for the 3 EFA Factors in Group 1.

Factor	Eigen-value	Variance (%)	Cumulative Variance (%)	Alpha	N Value
f1 Confidence	3.9	39.5	39.5	0.8	72
f2 Commitment	1.6	14.3	53.8	0.8	72
f3 Co-operation	1.1	10.9	64.7	0.4	72

Table 7.6 Relationship Focus: 2 items were removed from the initial 12 questionnaire items during the refining process (EFA and reliability tests).

Item	*Retain/Remove*	*Aimed Factor*
In times of shortages, this firm has gone out on a limb for us.	Retain	Trust
Promises made by this firm are reliable.	Retain	Trust
This firm is knowledgeable regarding their products.	Retain	Trust
This firm does not make false claims.	Retain	Trust
This firm is not open in dealing with us.	Remove	Trust
We are continually on the lookout for another firm to replace or to add to our current supply chain.	Remove	Commitment
We're patient when this firm makes mistakes that cause us trouble.	Retain	Commitment
We dedicate any resources necessary to grow sales for this firm.	Retain	Commitment
No matter who is at fault, problems are joint responsibilities.	Retain	Co-operation
Both sides are concerned about the other's profitability.	Retain	Co-operation
This firm will not take advantage of a strong bargaining position.	Retain	Co-operation
Both sides are willing to make co-operative changes.	Retain	Co-operation

Table 7.7 Relationship Focus: The refined version of EFA – Factor loadings for 10 questionnaire items retained.

	Factor 1 RELF_CONF	*Factor 2* RELF_COMIT	*Factor 3* RELF_COOP
RELF_CONF1	**0.820**	0.134	0.153
RELF_CONF2	**0.749**	0.061	0.273
RELF_CONF3	**0.628**	0.137	0.262
RELF_CONF4	**0.625**	0.360	-0.038
RELF_CONF5	**0.621**	0.101	0.018
RELF_COMIT1	0.078	**0.922**	0.015
RELF_COMIT2	0.191	**0.758**	0.088
RELF_COMIT3	0.522	**0.526**	0.432
RELF_COOP1	0.034	0.076	**0.947**
RELF_COOP2	0.295	0.026	**0.394**

Analysis N=72. Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalisation. Rotation converges in 5 iterations.

Group 2 - Channel Communications. This group included 17 items based on scales developed by Mohr & Sohi (1995) to measure communications. They identified communications as a multidimensional structure comprising information share, quality, formality and frequency. The initial data set produced a solution of 5 factors with Eigen values greater than one. During the refining procedure one of the factors was expressed through a single item. As the strength of EFA lies in finding patterns among groups of variables – there is little use in identifying factors composed of a single variable (Hair *et al.*, 1998) - this factor (*f5*) was dropped from further analysis. As a consequence of the withdrawal of this item from the original 17, 1 factor was renamed – Information share was renamed '*Information Flow*' as the factor loaded on

items describing not only the sharing but also the timeliness and support given to the information share (Table 7.8).

Inspection of the scree plot and variance suggested that four factors with Eigen values above 1.2 should be retained and used as descriptors of variance in the data. Together these four factors accounted for 63% of variance in the data. The excluded factor accounted for just 6% of the total variance.

Of the five identified factors, three presented moderate or high levels of reliability with alpha values over 0.8. One factor presented an alpha with a value just reaching the recommended acceptability of 0.6 (Murphy & Davidshofer, 1988). The fifth factor could not be tested for reliability as it was a single item factor and was not retained for further analysis. Table 7.10 presents the five factors and their loading for all seventeen variables. Table 7.8 presents the Eigen value, variance and coefficient alpha for each factor in this group.

Table 7.8 Channel Communications: Eigen-values, Variance and Coefficient Alphas for the 5 EFA Factors in Group 2

Factor	*Eigen-value*	*Variance (%)*	*Cumulative Variance (%)*	*Alpha*	*N Value*
F4 Information Flow	5.3	33.3	33.3	0.8	72
F5 Quality	1.9	12.1	45.4	0.8	72
F6 Formality	1.7	10.4	55.8	0.8	72
F7 Frequency	1.2	7.6	63.4	0.6	72
F8 Information share	1.0	6.4	69.8	N/A	72

Table 7.9 Channel Communications: 1 item was removed from the initial 16 questionnaire items during the refining process (EFA and reliability tests).

Item	*Retain/Remove*	*Aimed Factor*
We inform this firm in advance of changing needs.	Retain	Information share
We share proprietary information with this firm.	Remove	Information share
How much feedback do you provide about the product, market conditions etc.?	Retain	Formality
How much feedback does this firm provide to you?	Retain	Formality
The terms of our relationship have been written down in detail.	Retain	Formality
Our expectations of this firm are communicated in detail.	Retain	Formality
The terms of our relationship have been explicitly discussed.	Retain	Formality
What is the frequency of face-to-face interaction with salespeople?	Retain	Frequency
What is the frequency of telephone interaction with salespeople?	Retain	Frequency
What is the frequency of technical support?	Retain	Frequency
What is the frequency of written correspondence?	Retain	Frequency
To what extent are communications timely?	Retain	Quality
To what extent are communications accurate?	Retain	Quality
To what extent are communications adequate?	Retain	Quality
To what extent are communications complete?	Retain	Quality
To what extent are communications credible?	Retain	Quality

Table 7.10 Channel Communications: The refined version of EFA – Factor loadings for 16 questionnaire items retained.

	Factor 4 COM_INFF	*Factor 5* COM_QUAL	*Factor 6* COM_FORM	*Factor 7* COM_FREQ	*Factor 8* COM_INFSHA
COM_INFF1	**0.770**	0.056	-0.077	0.088	0.360
COM_INFF2	**0.717**	0.039	0.137	0.158	0.345
COM_INFF3	**0.702**	0.091	0.175	0.147	-0.088
COM_INFF4	**0.683**	0.438	-0.108	-0.005	-0.032
COM_INFF5	**0.621**	0.295	0.267	0.127	-0.124
COM_INFF6	**0.616**	0.085	0.112	0.004	0.108
COM_QUAL1	0.322	**0.821**	0.212	-0.004	0.128
COM_QUAL2	0.211	**0.810**	0.078	0.006	-0.202
COM_QUAL3	0.076	**0.784**	0.099	0.178	0.355
COM_FORM1	0.066	0.166	**0.851**	0.009	0.240
COM_FORM2	0.054	0.116	**0.820**	0.115	-0.145
COM_FORM3	0.297	0.073	**0.758**	0.281	0.115
COM_FREQ1	0.135	0.052	0.099	**0.859**	-0.088
COM_FREQ2	0.488	-0.006	0.177	**0.634**	0.157
COM_FREQ3	-0.113	0.477	0.210	**0.512**	0.078
COM_INSHA1	0.208	0.099	0.100	-0.015	**0.878**

Analysis N=72. Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalisation. Rotation converges in 8 iterations.

Group 3 - Channel Leadership. This group included eight items based on a scale developed by Schul, Pride & Little (1983) to measure channel leadership. They identified leadership as a multidimensional structure comprising three leadership types – participative leadership, supportive leadership and directional leadership. The initial data set produced a solution of 4 factors with Eigen values greater than one.

During the refining procedure one of the factors was expressed through a single item and was thus removed. The reliability test suggested the removal of a second item. As a consequence a two-factor solution was presented (Table 7.11).

Inspection of the scree plot and variance suggested the two factors with Eigen values above 1.2 should be retained and used as descriptors of variance in the data. Together these two factors accounted for 46% of variance. The excluded factors accounted for a further 13% and 12% of the total variance respectively. This was not a strong result.

One of the identified factors demonstrated a low level of reliability with an alpha value at 0.6. Table 7.11 presents the Eigen value, variance and coefficient alpha for each factor in this group. Table 7.12 presents the two factors and their loading for all eight variables.

Table 7.11 Channel Leadership: Eigen-values, Variance and Coefficient Alphas for the 2 EFA Factors in Group 3

Factor	Eigen-value	Variance (%)	Cumulative Variance (%)	Alpha	N Value
F8 Participative	4.0	30.3	30.3	0.7	72
F9 Directional	2.6	16.4	46.7	0.6	72

Table 7.12 Channel Leadership: 2 items were removed from the initial 8 questionnaire items during the refining process (EFA and reliability tests).

Item	Retain/Remove	Aimed Factor
This firm has a major influence in the determination of our policies and standards.	Remove	Participative
Good ideas from this firm often don't get passed to our managers.	Retain	Participative
This firm is not allowed to provide input into the determination of standards and promotional budgets.	Retain	Participative
There is a definite lack of coaching, support and feedback.	Retain	Supportive
Once this firm has transacted with us, they forget all about us.	Remove	Supportive
This firm is provided with good operations guidelines.	Retain	Directional
The rights/obligations of all parties are spelled out in the contract.	Retain	Directional
We encourage this firm to adopt our uniform procedures.	Retain	Directional

Table 7.13 Channel Leadership: The refined version of EFA – Factor loadings for 6 questionnaire items retained.

	Factor 9 L_PART	*Factor 10* L_DIR
L_PART1	**0.827**	-0.160
L_PART2	**0.763**	0.234
L_PART3	**0.708**	0.312
L_DIR1	-0.026	**0.773**
L_DIR2	0.182	**0.746**
L_DIR3	0.134	**0.611**

Analysis N=72. Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalisation. Rotation converges in 5 iterations.

Group 4 - Channel Power. This group included twenty-one items based on scales developed by Gaski & Nevin (1985) to measure channel power. They identified power as a multidimensional construct. They measure a firm's ability to influence its trading partner and define five power sources: 1) ability to influence, 2) perceived coercive power, 3) perceived reward power, 4) exercised coercive power, 5) exercised reward power. There was a difficulty in the examination of this data set because of the large number of variables it incorporates. This gave a ratio of variables to cases of 3:1 and, therefore, fell well below the 5:1 ratio recommended for factor analysis (Hair *et al.*, 1998). It was decided to begin by looking at the reliability of the existing scales as defined by Gaski & Nevin. The factors we would have expected to find were labelled '*aimed factors*' and used to group items for reliability testing. Of the five aimed factors, three (*af11, af13, af15*) presented moderate levels of reliability with alpha values between 0.7 and 0.8. Two other factors presented unacceptable alphas with values below 0.6 (Table 7.14).

As two of the reliability scores were unacceptable we decided to carry out a factor analysis by removing two aimed factors, thus removing eight items from the EFA test. Because of the way the power scales were constructed, it was decided to remove one of the sets of items that were compared against two different criteria[86] – capability and frequency (Table 7.15 below.). This group now included thirteen items. The initial data set produced a solution of 4 factors with Eigen values greater than one. During the refining procedure a new unexpected factor appeared *(f12)*. The ability to raise or lower prices charged for goods sold by a trading partner was labelled '*Pricing*

[86] Questions 28. and 29. in the questionnaire (Appendix 2).

Power'. The other three factors presented (*f11,f13,f14*) mirrored closely the aimed factors suggested by the original scale.

The scree plot and variance suggested that all four factors with Eigen values above 1.1 should be retained and used as descriptors of variance in the data. Together these four factors accounted for 65% of variance. The excluded factor accounted for just 6% of the total variance.

Of the four identified factors, three (*f11, f12, f13*) presented moderate or high levels of reliability with alpha values over 0.7. One other factor presented an unacceptable alpha value below 0.6 (Murphy & Davidshofer, 1988; Nunnally, 1978). Table 7.15 presents the Eigen value, variance and coefficient alpha for each factor in this group. Table 7.17 presents the four factors and their loading for the thirteen variables.

Table 7.14 Channel Power: Coefficient Alphas for the 5 Aimed Factors in Group 4

Aimed Factor	Alpha	N Value
af11 Ability to influence	0.8	72
af12 Perceived Coercive Power	**0.5**	72
af13 Perceived Reward Power	0.7	72
af14 Exercised Coercive Power	**0.5**	72
af15 Exercised Reward Power	0.8	72

Table 7.15 Channel Power: Eigen-values, Variance and Coefficient Alphas for the 4 EFA Factors in Group 4

Factor	Eigen-value	Variance (%)	Cumulative Variance (%)	Alpha	N Value
F11 Ability to influence	1.8	14.2	14.2	0.8	72
F12 Perceived Reward Power	3.9	29.8	44.0	0.7	72
F13 Pricing Power	1.6	12.3	56.3	0.7	72
F14 Perceived Coercive Power	1.2	9.0	65.3	**0.5**	72

Table 7.16 Channel Power: 8 items were removed from the initial 21 questionnaire items during the refining process (EFA and reliability tests).

Item	Retain/ Remove	Aimed Factor
How much <u>capability</u> does this firm have to take each of the following actions with your firm:		
Delay delivery	Retain	Perceived Coercive
Charge high prices	Retain	Perceived Coercive
Provide advertising support	Retain	Perceived Reward
Train Personnel	Retain	Perceived Reward
Provide sales promotions materials	Retain	Perceived Reward
Provide financing/credit	Retain	Perceived Reward
Give business advice	Retain	Perceived Reward
Provide inventory management assistance	Retain	Perceived Reward
With what <u>frequency</u> does this firm take each of the following actions:		
Delay delivery	Remove	Exercised Coercive
Charge high prices	Remove	Exercised Coercive
Provide advertising support	Remove	Exercised Reward
Train Personnel	Remove	Exercised Reward
Provide sales promotions materials	Remove	Exercised Reward
Provide financing/credit	Remove	Exercised Reward
Give business advice	Remove	Exercised Reward
Provide inventory management assistance	Remove	Exercised Reward
If this firm wanted you to raise prices you charge for their product what is the maximum amount you would raise prices?	Retain	Ability to Influence
If this firm wanted you to lower prices you charge for their product what is the maximum amount you would lower prices?	Retain	Ability to Influence
If this firm wanted you to change the type of advertising and sales promotions you do for their product what is the maximum amount you would change?	Retain	Ability to Influence
If this firm wanted you to change your customer service policy what is the maximum amount you would change?	Retain	Ability to Influence
If this firm wanted you to change your customer credit policy what is the maximum amount you would change?	Retain	Ability to Influence

Table 7.17 Channel Power: The refined version of EFA – Factor loadings for 13 questionnaire items retained.

	Factor 11 P_PR	Factor12 P_ABINF	Factor 13 P_PP	Factor 14 P_PC
P_PR1	**0.773**	0.052	0.201	-0.410
P_PR2	**0.727**	-0.008	0.208	-0.294
P_PR3	**0.641**	0.241	0.093	-0.030
P_PR4	**0.637**	0.293	-0.192	0.185
P_PR5	**0.463**	0.177	-0.162	0.220
P_ABINF1	0.194	**0.849**	0.217	-0.085
P_ABINF2	0.074	**0.817**	0.197	-0.010
P_ABINF3	0.284	**0.624**	0.263	-0.386
P_ABINF4	0.395	**0.616**	-0.348	0.162
P_PP1	0.109	0.136	**0.839**	-0.153
P_PP2	-0.025	0.205	**0.776**	0.144
P_PC1	0.110	-0.110	0.209	**0.801**
P_PC2	-0.175	-0.005	-0.167	**0.745**

Analysis N=72. Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalisation. Rotation converges in 15 iterations.

Group 5 – Market Orientation. Group 5 was based on market orientation data and concerned the responding firm's performance and not that of their trading partners. Consequently there were only forty cases available for analysis (N=40). The unit of analysis was the firm.

This group included fourteen items based on scales developed by Narver & Slater (1990) to measure market orientation. They identified market orientation as a multidimensional structure comprising customer orientation, competitor orientation and inter-functional co-ordination. As with the Channel Power analysis (Group 4) there was difficulty in examining the data because of the '*cases to variables*' ratio. Because we were now only working with forty cases, this gave a ratio 2.8:1 and, therefore, fell below the 5:1 ratio (Hair *et al.*, 1998). Initially a factor analysis was carried out on each sub-group of items defined by the aimed factor.[87] It was expected that the components would result in the presentation of one factor for each of the three analyses. This was indeed the case. As this result was so promising an experimental factor analysis was carried out using all fourteen variables despite contravening the 5:1 rule.

The initial data set produced a solution of three factors with Eigen values greater than one. During the refining procedure one item was dropped from further analysis (Table 7.19). It was not necessary to rename factors as a consequence of the withdrawal of this item from the original fourteen.

Inspection of the scree plot and variance suggested that three factors with Eigen values above 1.2 should be retained and used as descriptors of variance in the data. Together these three factors accounted for 74% of variance.

All three identified factors presented moderate or high levels of reliability with alpha values of 0.7 or above (Table 7.18). One item had been specified as having the aimed factor *inter-functional co-ordination* but loaded with the *customer orientation* factor. Due to the problem with sampling adequacy and the strength of previous empirical testing and theory provided in the literature, it was decided to drop this item from

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[87] *af16* = customer orientation, *af17* = competitor orientation, *af18* = inter-functional co-ordination

further analysis. Table 7.20 presents the three factors and their loading for all thirteen variables.[88] Table 7.18 presents the Eigen value, variance and coefficient alpha for each factor in this group.

Table 7.18 Market Orientation: Eigen-values, Variance and Coefficient Alphas for the 3 EFA Factors in Group 5

Factor	Eigen-value	Variance (%)	Cumulative Variance (%)	Alpha	N Value
F15 Customer Orientation	9.0	57.9	57.9	0.9	40
F16 Competitor Orientation	1.4	8.7	66.6	0.9	40
F17 Inter-functional Co-ordination	1.2	7.7	74.3	0.7	40

Table 7.19 Market Orientation: 1 item was removed from the initial 13 questionnaire items during the refining process (EFA and reliability tests).

Item	Retain/ Remove	Aimed Factor
Our firm's objectives are driven by customer satisfaction	Remove	Customer Orientation
Our commitment to serving customer needs is monitored.	Retain	Customer Orientation
Our competitive advantage strategy is based on customer needs.	Retain	Customer Orientation
Our strategies are driven by our beliefs about creating customer value.	Retain	Customer Orientation
Customer satisfaction is frequently and systematically measured.	Retain	Customer Orientation
Close attention is given to after-sales service.	Retain	Customer Orientation
Our salespeople share information on competitors' strategies.	Retain	Competitor Orientation
We respond rapidly to competitors' actions.	Retain	Competitor Orientation
Our top managers regularly discuss competitors' strengths and weaknesses.	Retain	Inter-functional Co-ordination
Our customers are targeted for competitive advantage.	Retain	Inter-functional Co-ordination
Our top functional managers regularly visit customers.	Retain	Inter-functional Co-ordination
We share information about customer experiences between functions.	Retain	Inter-functional Co-ordination
Our business functions are integrated to serve target market needs.	Retain	Inter-functional Co-ordination

[88] The customer orientation item (CUS_OR6) shown in red in Table 7.20, was dropped from further analysis on theoretical grounds. In this factor analysis this item did not group with its aimed factor – inter-functional co-ordination. By dropping this item, the reliability alpha was depleted slightly to 0.8886. This is still a very acceptable reliability score.

Table 7.20 Market Orientation: The refined version of EFA – Factor loadings for 13 questionnaire items retained.

	Factor 16 CUS_OR	*Factor 17* COMP_OR	*Factor 18* INT_COOP
CUS_OR1	**0.775**	0.367	0.208
CUS_OR2	**0.767**	0.358	0.165
CUS_OR3	**0.755**	0.488	0.087
CUS_OR4	**0.747**	0.502	0.131
CUS_OR5	**0.594**	0.323	0.396
CUS_OR6†	**0.545**	-0.099	0.324
COMP_OR1	0.162	**0.897**	0.113
COMP_OR2	0.300	**0.795**	0.242
COMP_OR3	0.467	**0.632**	0.405
COMP_OR4	0.460	**0.600**	0.399
INT_COOP1	0.180	0.301	**0.812**
INT_COOP2	0.093	0.389	**0.807**
INT_COOP3	0.412	-0.062	**0.576**

Analysis N=40. Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalisation. Rotation converges in 16 iterations.

† This item was dropped from further analysis because in the original scale it was used as an inter-functional co-ordination indicator. Theoretical and empirical evidence suggested that it should not be retained for further analysis.

7.4 Summated Scales

This method of combining several variables that measure the same concept into a single variable has two key advantages for this study; 1) it increases reliability through multivariate measurement at the same time as reducing the number of items we have to deal with in our analysis and 2) it allows comparability of results between samples which is important for our study as its exploratory nature suggests a need for the analysis to be replicated in future studies on a much larger scale.

The summated scales method allows us to specify more precisely the responses desired and does not place total reliance on a single response but instead on the average or typical response to a set of related responses (Sullivan & Feldman, 1979). As Hair *et al.* (1998) comment,

> *"...if the scale is a well-constructed, valid and reliable instrument, the summated scale is probably the best alternative."* (p.391).

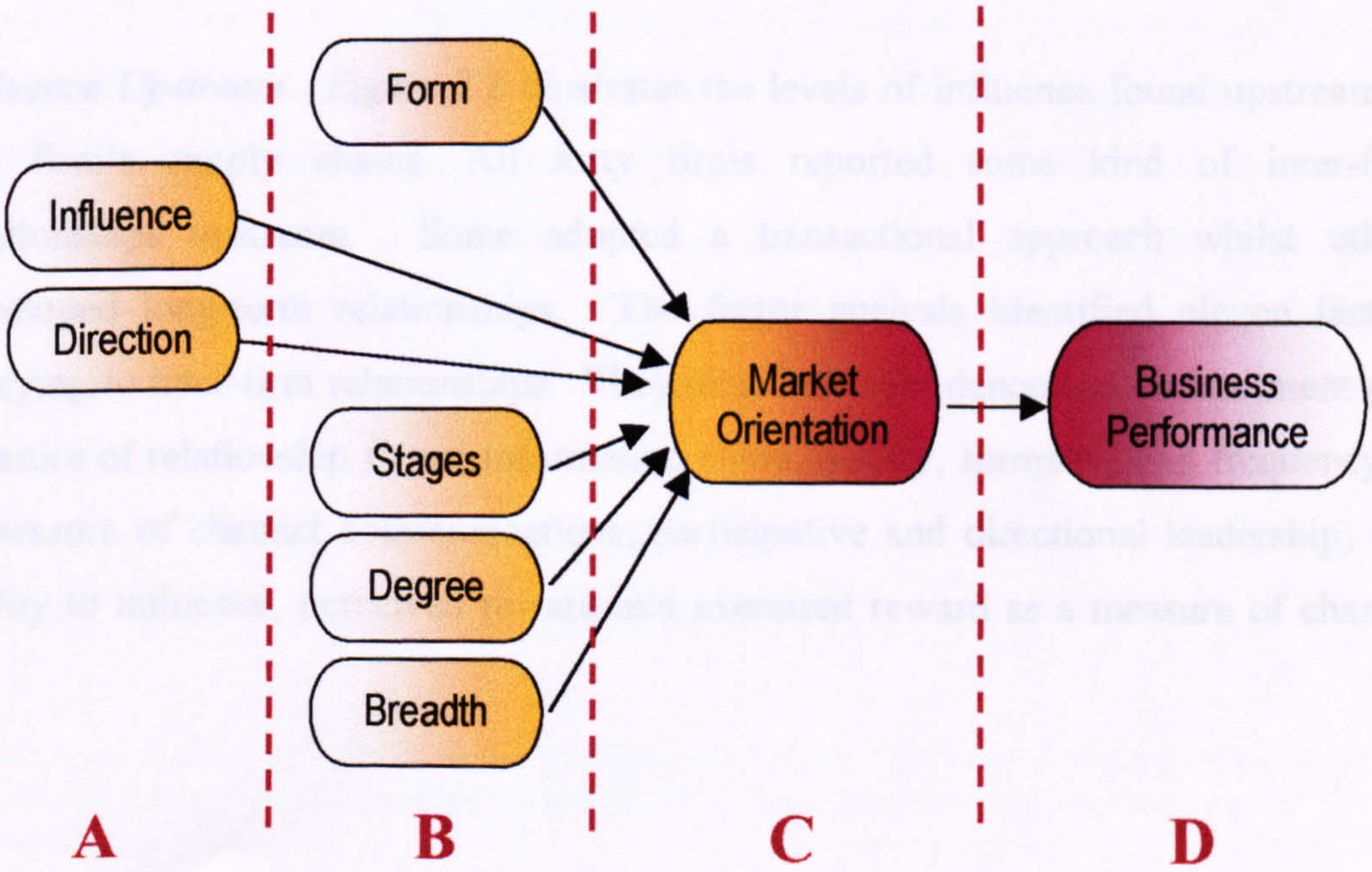
All summated scales are shown in Table 7.3. Only co-ordination technology and business performance used individual items as their method of measurement. This

was because our research design did not allow sufficient scope for the development of new scales and existing scales in this area were not found in the literature. Therefore, traditional single item measurement more typically associated with these areas was used.

7.5 Descriptive Statistics

This section uses descriptive statistics to explore each of our constructs. Using the framework presented in Chapter 4 (also see Figure 7.1 below), we begin by examining the dimensions of influence within inter-firm relationships in order to better understand which factors are most strongly associated with creating influence (Figure 7.1, section A). We then explore influence in the wider context of the six supply chain configurations identified by this research (Figure 7.1, sections A, B) and the relationships with market orientation (Figure 7.1, sections A to C). Next we examine the dimensions of the market orientation and its association with business performance (Figure 7.1, sections C and D). Finally we consider the balanced scorecard perspective of business performance and explore market orientation levels for their likely impact on each of the four performance perspectives (Figure 7.1, sections C and D).

Figure 7.1 The Dimensions of Supply Chain Configuration as Determinants of Market Orientation and Business Performance explored in Section 7.5



7.5.1 Influence in Inter-firm Relationships

This section examines the impact and positioning of influence factors in order to create a better understanding of our first hypothesis:

$H_{0/1}$: There will be no significant difference between the level of business performance achieved and the supply chain configuration adopted.

and the sub-hypotheses:

$H_{0/1a}$: There will be no significant difference between the level of business performance achieved and the method of integration adopted upstream.

$H_{0/1b}$: There will be no significant difference between the level of business performance achieved and the method of integration adopted downstream.

These hypotheses require a proper understanding of the methods of integration and thus the behaviour of firms implementing relationships, together with the positioning of those relationships within the supply chain. The objective of this section is to use descriptive statistics to address this point.

We began our examination of inter-firm relationships by comparing the levels achieved by each firm on each factor both upstream and downstream. As can be seen from the graphs (Figures 7.2 and 7.3, p.243), the patterns are similar for upstream and downstream relationships.

Influence Upstream. Figure 7.2 illustrates the levels of influence found upstream of our firm's supply chains. All forty firms reported some kind of inter-firm relationships upstream. Some adopted a transactional approach whilst others developed long-term relationships. The factor analysis identified eleven factors applying to inter-firm relationships. They included: confidence and commitment as a measure of relationship focus; information share, quality, formality and frequency as a measure of channel communications; participative and directional leadership; and ability to influence, perceived reward and exercised reward as a measure of channel

power. A further two factors were added to channel power on theoretical grounds – perceived coercive power and exercised coercive power.[89]

There was a frequent occurrence of firms reporting high levels of confidence in their upstream business partners. This pattern was reflected in the responses to quality of communications and perceived coercive power. Over 50% of firms reported high levels in these areas. However, channel power upstream was generally reported to be low with 75% of firms reporting a limited ability to influence their trading partners and 87% reporting low levels of exercised reward power.

Only 12% of respondents reported low levels of commitment in upstream inter-firm relationships, and less than 12% reported low levels of confidence, directional leadership and perceived coercive power. Firms often commented on the ability of a supplier to disrupt their business by late or incorrect delivery and the charging of high prices. Though they concede that this rarely happened,[90] the threat was held very much in mind.

Channel communications seemed to play an important role in inter-firm relationships with an average of 85% of respondents reporting either high or medium levels of communication quality, formality, frequency and information share.

Influence Downstream. Thirty-two firms reported inter-firm relationships downstream (Figure 7.3). As with upstream relationships we found a high frequency of high and medium levels of confidence and commitment with downstream trading partners. What was perhaps interesting here was the greater number of firms that reported low levels of commitment. Considering that the trading partners were our firms' customers, one might have expected commitment to the customer to be high (see also Section 7.5.2).

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[89] For a more detailed explanation of this procedure see Section 7.3 (*Group 4 – Channel Power*, p.234)
[90] Exercised coercive power was rarely reported with 70% of firms reporting low frequency of occurrence.

Figure 7.2 The levels of Influence found in upstream inter-firm relationships.

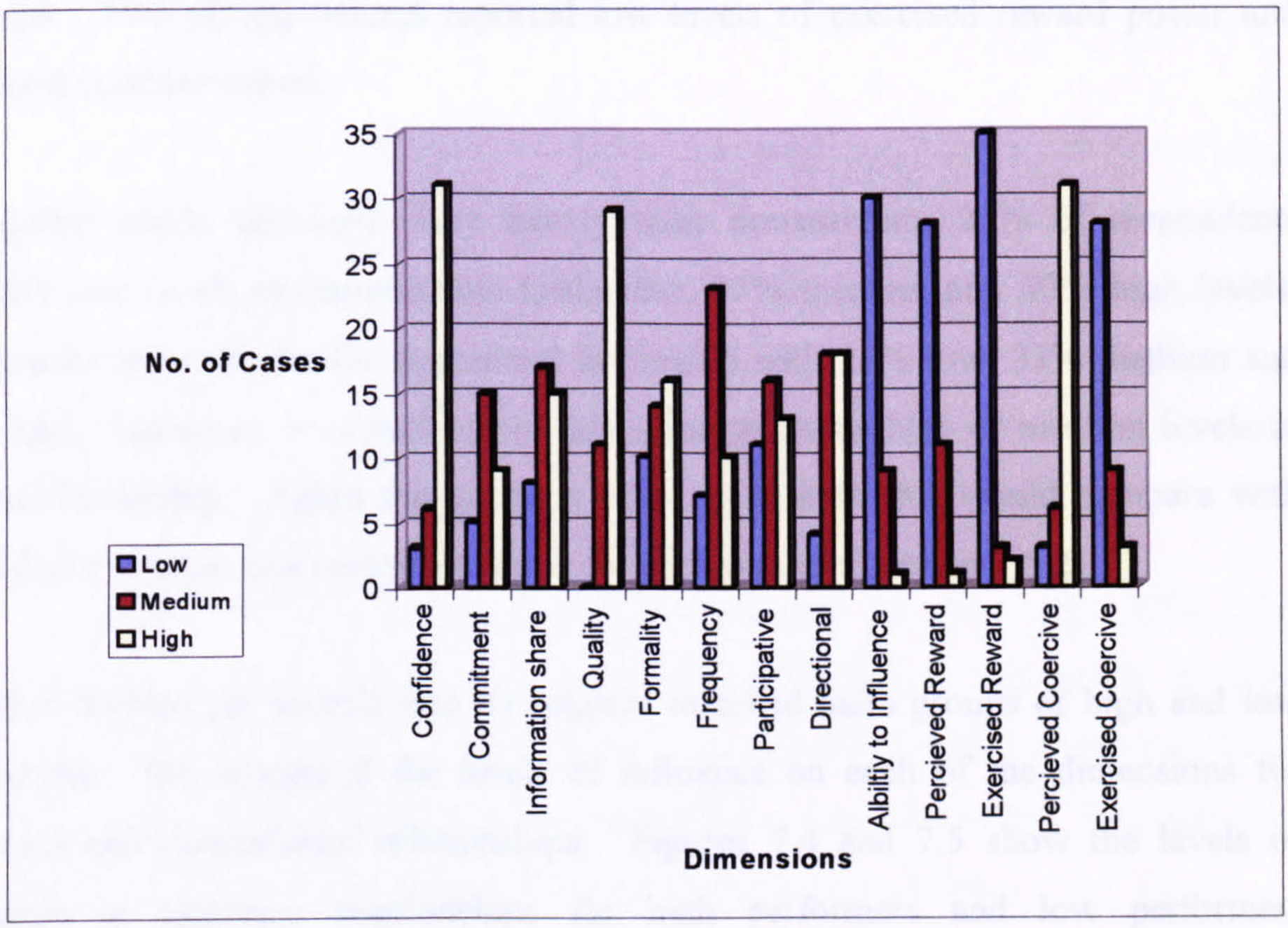
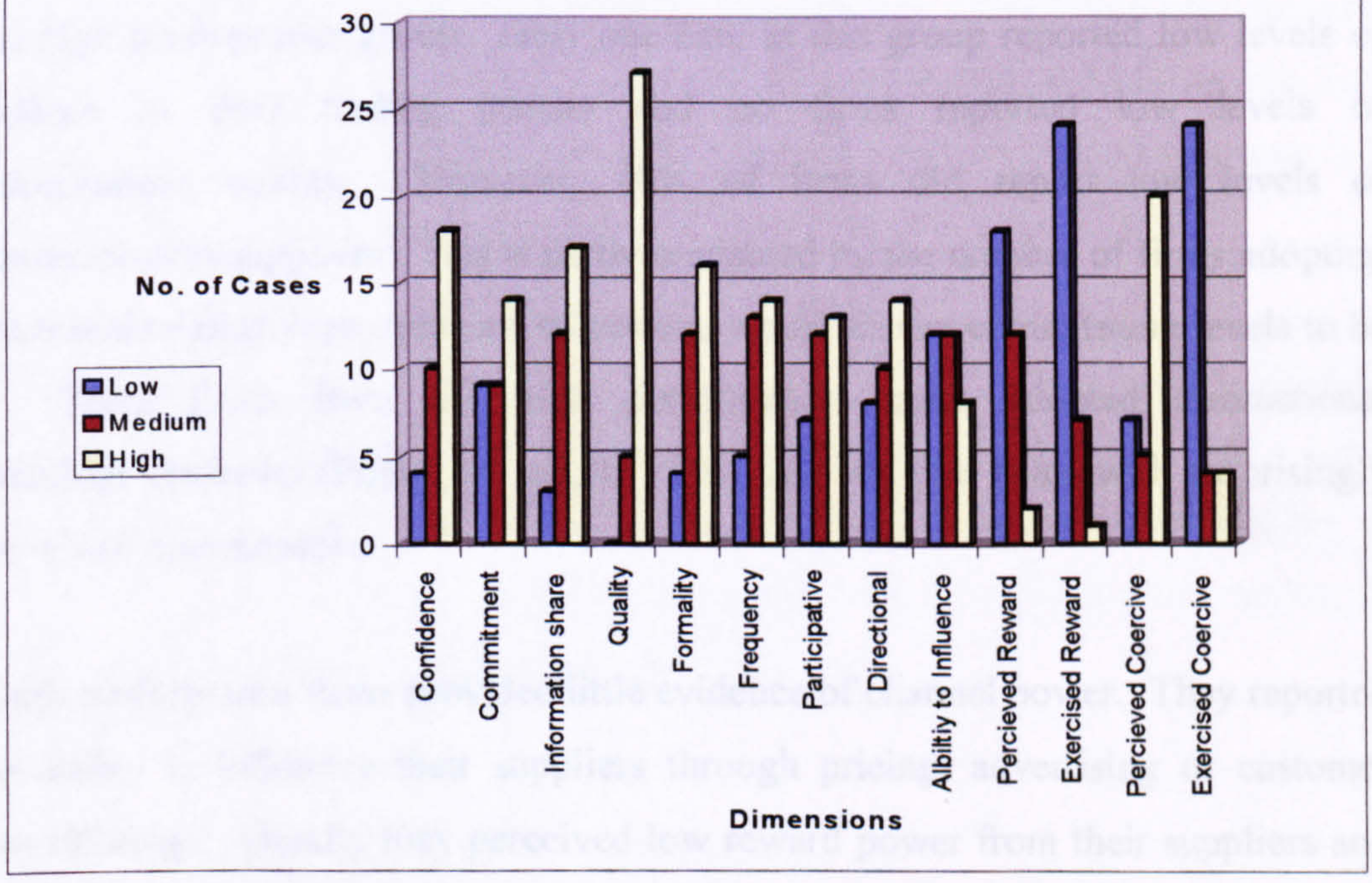


Figure 7.3 The levels of Influence found in downstream inter-firm relationships.



Again the patterns of high channel communication and low channel power levels were repeated. 75% of respondents reported low levels of exercised reward power and exercised coercive power.

Leadership levels appeared more evenly split downstream. 23% of respondents reported low levels of participative leadership, 37% medium and 40% high levels. The results were similar for directional leadership with 25% low, 31% medium and 44% high. However, over half of our firms demonstrated high or medium levels of channel leadership. Again the question arose as to how this would compare with those firms' market orientation and business performance (Section 7.5.2).

We then divided the sample into its original matched pairs groups of high and low performers. We compared the levels of influence on each of the dimensions for upstream and downstream relationships. Figures 7.4 and 7.5 show the levels of influence in upstream relationships for high performers and low performers respectively.

High Performers Upstream. Figure 7.4 illustrates the dominant high and medium levels of relationship focus, channel communication and channel leadership that exist in this high performance group. Only one firm in this group reported low levels of confidence in their trading partner and no firms reported low levels of communications quality. However, 40% of firms did report low levels of commitment with suppliers. This is partly explained by the number of firms adopting transactional relationships upstream where one would expect commitment levels to be low. Three firms from the high performance group adopted transactional relationships upstream (Figure 6.1 p154). This still left five firms with surprisingly low levels of commitment.

The high performance firms provided little evidence of channel power. They reported a low ability to influence their suppliers through pricing, advertising or customer service offerings. Equally they perceived low reward power from their suppliers and reported that such power was rarely exercised. However, firms in this group were aware of the threat of coercive power and the difficulties associated with single source

agreements. Whilst it was acknowledged that coercive power was rarely exercised, high performance firms reported a clear and present danger.

Low Performers Upstream. Figure 7.5 illustrates a surprisingly high number of firms from the low performance group claiming high levels of confidence in their upstream business partners. 75% of respondents in this group suggested that upstream confidence was high. However, the levels of commitment reported told a different story. 50% of firms in this group reported low levels of commitment upstream and a further 35% reported only moderate levels.

As with the high performance group, no firms reported low levels of quality with communications. But a great proportion of respondents in this group reported medium quality despite 40% of respondents recording high quality communications. Information share was evenly divided between the three levels but formality and frequency of communications was dominated by the medium band.

Responses to leadership levels were fairly evenly split across the three levels. Two more respondents recorded medium levels of participative leadership than recorded high and low levels. The responses to directional leadership were slightly more dispersed with 45% of respondents recording high directional leadership upstream and 40% reporting medium levels. This was a similar pattern to that found in the high performance group. In this group there were a greater number of firms reporting low levels of directional leadership upstream.

Channel power was not evident in this low performance group. As with the high performers, most respondents considered perceived coercive power a threat. Only one firm recognised the actualisation of the perceived threat with any degree of frequency. One firm also stood out as being the only firm from either group as demonstrating an ability to influence upstream suppliers.

Figure 7.4 The levels of Influence found in upstream inter-firm relationships – High Performance Firms only

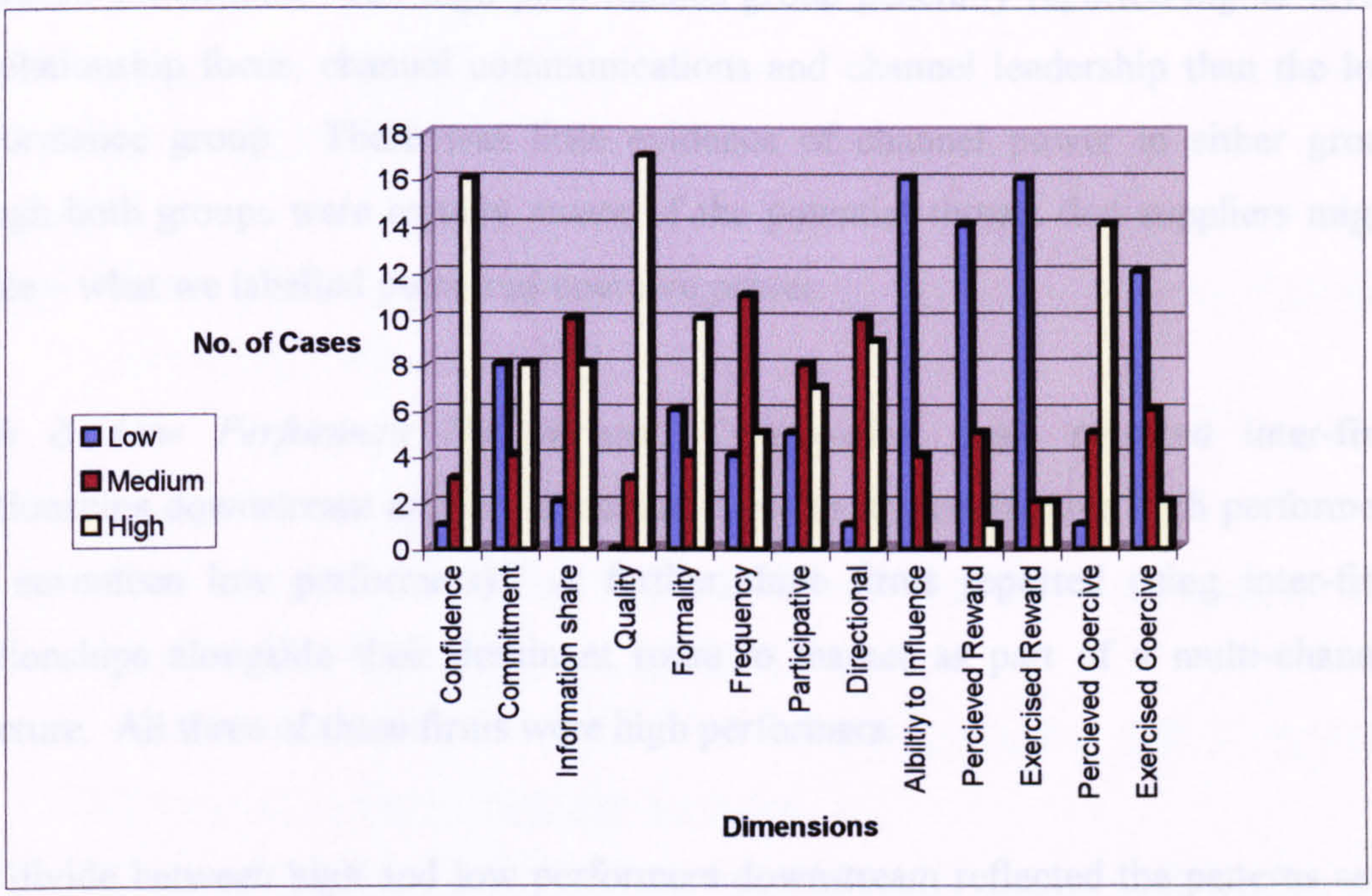
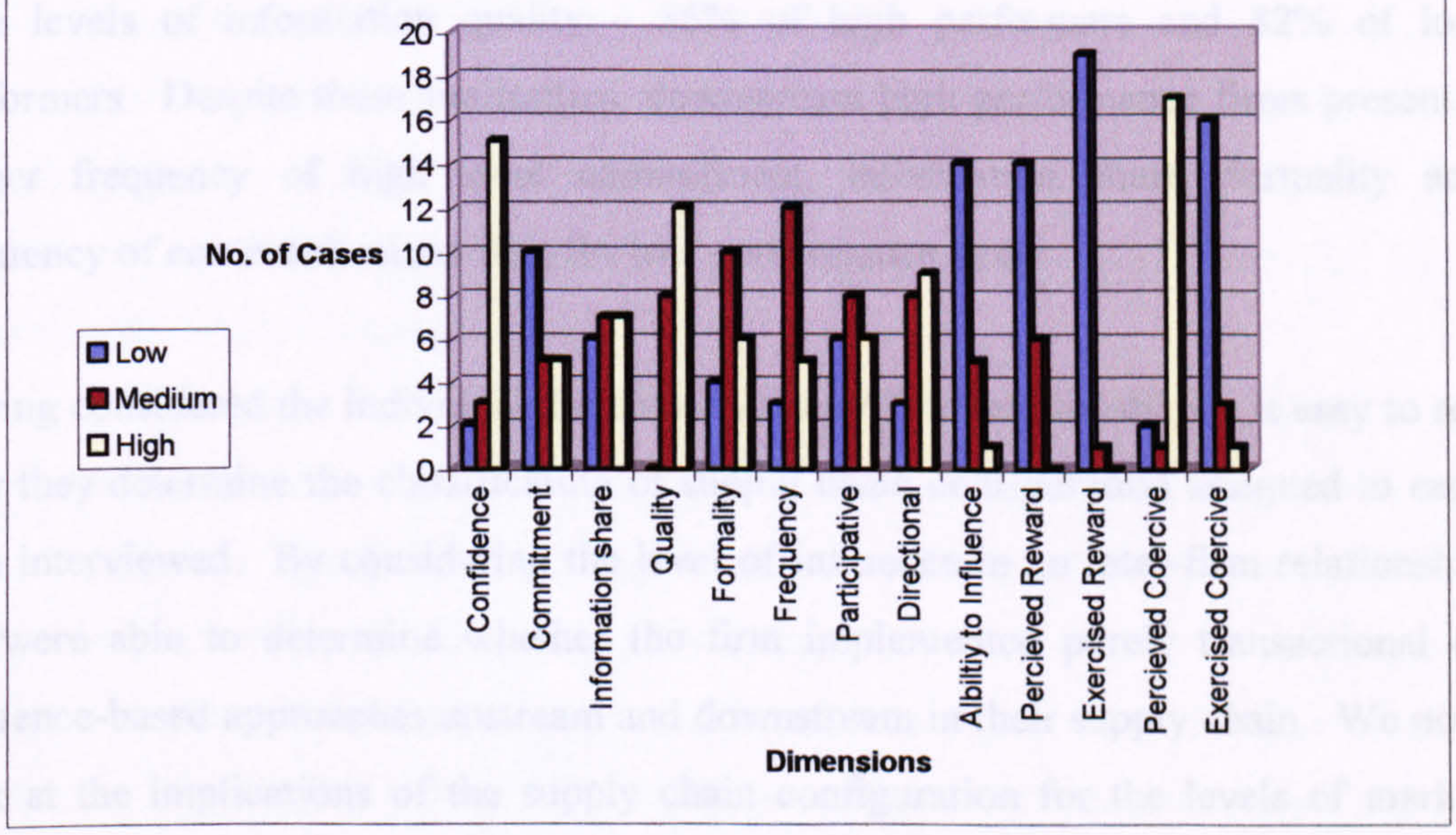


Figure 7.5 The levels of Influence found in upstream inter-firm relationships – Low Performance Firms only



Overall there was a clear difference between high and low performance firms on the influence dimensions. The high performance group generally reported higher levels of relationship focus, channel communications and channel leadership than the low performance group. There was little evidence of channel power in either group though both groups were equally aware of the potential threats that suppliers might create – what we labelled perceived coercive power.

High & Low Performers Downstream. Twenty-nine firms reported inter-firm relationships downstream as their dominant route to market (twelve high performers and seventeen low performers). A further three firms reported using inter-firm relationships alongside their dominant route to market as part of a multi-channel structure. All three of these firms were high performers.

The divide between high and low performers downstream reflected the patterns seen between the two groups upstream (Figures 7.4 and 7.5). Downstream levels of confidence and information quality appeared high in both groups. Both high and low performers recorded 60% of responses as having high levels of confidence in downstream supply chain members. There was also parity between the frequently high levels of information quality – 86% of high performers and 82% of low performers. Despite these similarities, downstream high performance firms present a higher frequency of high level commitment, information share, formality and frequency of communications than the low performance firms.

Having considered the individual dimension of inter-firm relationships it is easy to see how they determine the classification of supply chain configuration assigned to each firm interviewed. By considering the level of influence in an inter-firm relationship we were able to determine whether the firm implemented purely transactional or influence-based approaches upstream and downstream in their supply chain. We now look at the implications of the supply chain configuration for the levels of market orientation and business performance achieved by the firms in our sample.

7.5.2 Supply Chain Configurations

This section examines the impact and position of influence in the wider context of supply chain configuration in order to create a better understanding of our second hypothesis:

$H_{0/2}$: There will be no significant difference between the supply chain configuration adopted and the level of market orientation achieved.

and the sub-hypotheses:

$H_{0/2a}$: There will be no significant difference between the supply chain configuration adopted and the level of customer orientation.

$H_{0/2b}$: There will be no significant difference between the supply chain configuration adopted and the level of competitor orientation.

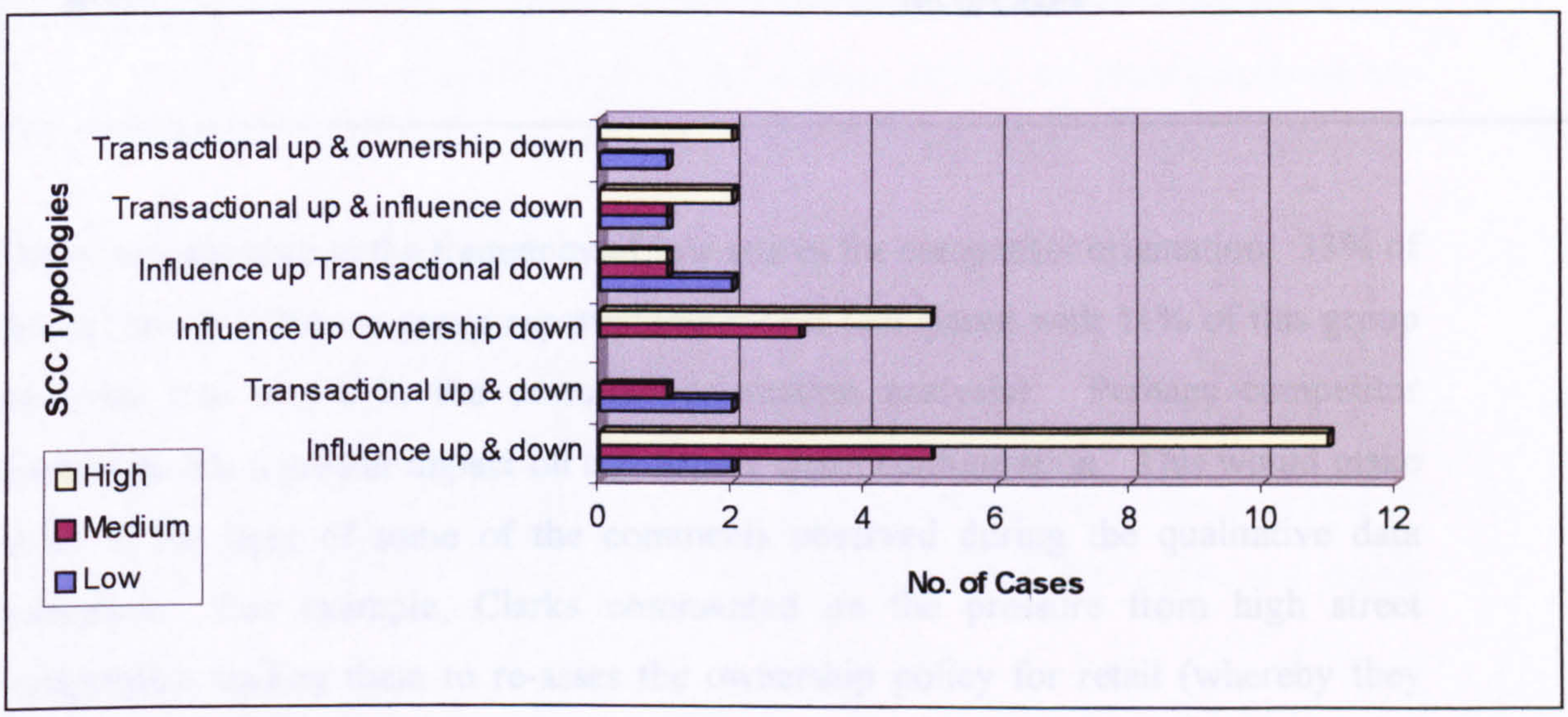
$H_{0/2c}$: There will be no significant difference between the supply chain configuration adopted and the level of inter-functional co-ordination.

Within our sample of forty firms, six distinct supply chain configurations were identified. We compared each of the supply chain configurations found with the levels of market orientation recorded by the firms. Market orientation comprises three dimensions; customer orientation, competitor orientation and inter-functional co-ordination. By using cross tabulations we were able to illustrate how each firm performed on each of the market orientation dimensions dependent on the supply chain configuration it adopted.

Customer Orientation. The greatest frequency of high market orientation levels was found in two key supply chain configurations; the Influence/Influence supply chain and the Influence/Ownership supply chain (Chapter 4, pp.121-122). Not surprisingly these two supply chains were the most widely adopted supply chain configurations in our sample (Figure 6.1, p.154). The influence supply chain accounted for 45% of firms in our sample and the influence/ownership supply chain for a further 20%. Only one supply chain configuration typology (Transactional/Transactional) did not include any firms recording high levels of customer orientation. Indeed, two out of the three firms adopting this supply chain configuration reported low customer orientation.

The Transactional/ownership supply chain scores for customer orientation represented exactly the high performer/low performer divide, with the two high performance firms recording high customer orientation scores and the low performance firms recording a low customer orientation. The influence/ownership supply chain included seven high performers and one low performer. The customer orientation levels for this supply chain were more mixed with five firms recording high customer orientation but three firms recording moderate levels.

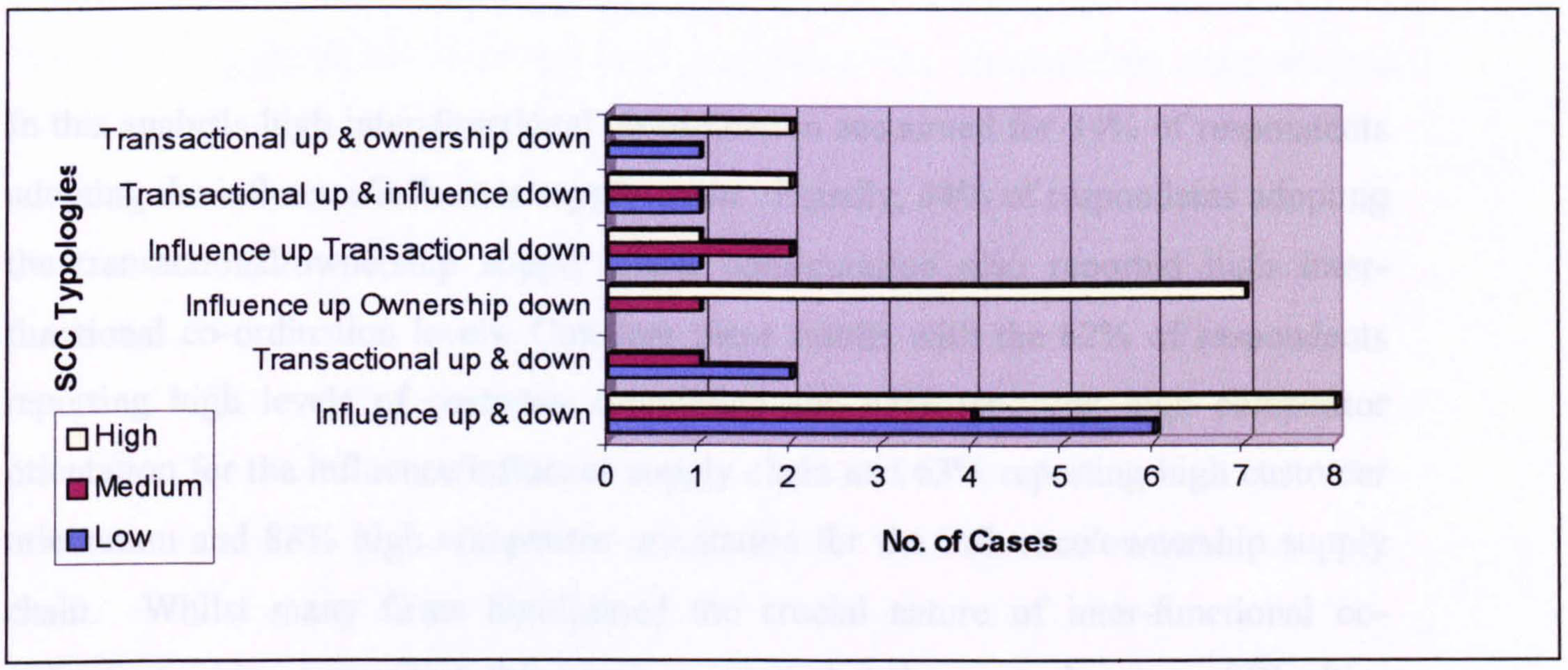
Figure 7.6 The levels of customer orientation found in the different supply chain configuration typologies.



Both the transactional/influence and the influence/transactional supply chain configurations demonstrated reciprocity of the high/low performance breakdown with all three high performance firms scoring highly on the customer orientation criteria.

Competitor Orientation. Here we saw parity with the patterns found when comparing supply chain configuration with customer orientation. The greatest frequency of high competitor orientation levels was found amongst the most widely adopted supply chain configurations; the influence/influence and the influence/ownership supply chains (Figure 7.7). As with the customer orientation analysis, the transactional/transactional supply chain group, comprising low performers only, did not include any firms with high competitor orientation scores. However, one of the three low performers from this group did demonstrate medium levels of competitor orientation.

Figure 7.7 The levels of competitor orientation found in the different supply chain configuration typologies.



There was diversity in the frequency of low scores for competitor orientation. 33% of this influence/influence group reported low scores (compared with 11% of this group reporting low scores in the customer orientation analysis). Perhaps competitor orientation has a greater impact on this supply chain configuration. This would make sense in the light of some of the comments observed during the qualitative data collection. For example, Clarks commented on the pressure from high street competition leading them to re-asses the ownership policy for retail (whereby they wholly own retail outlets) and seek alternative routes to market where fixed assets are reduced. They are pursuing growth through the use of franchise agreements as an alternate, more cost effective approach to market.

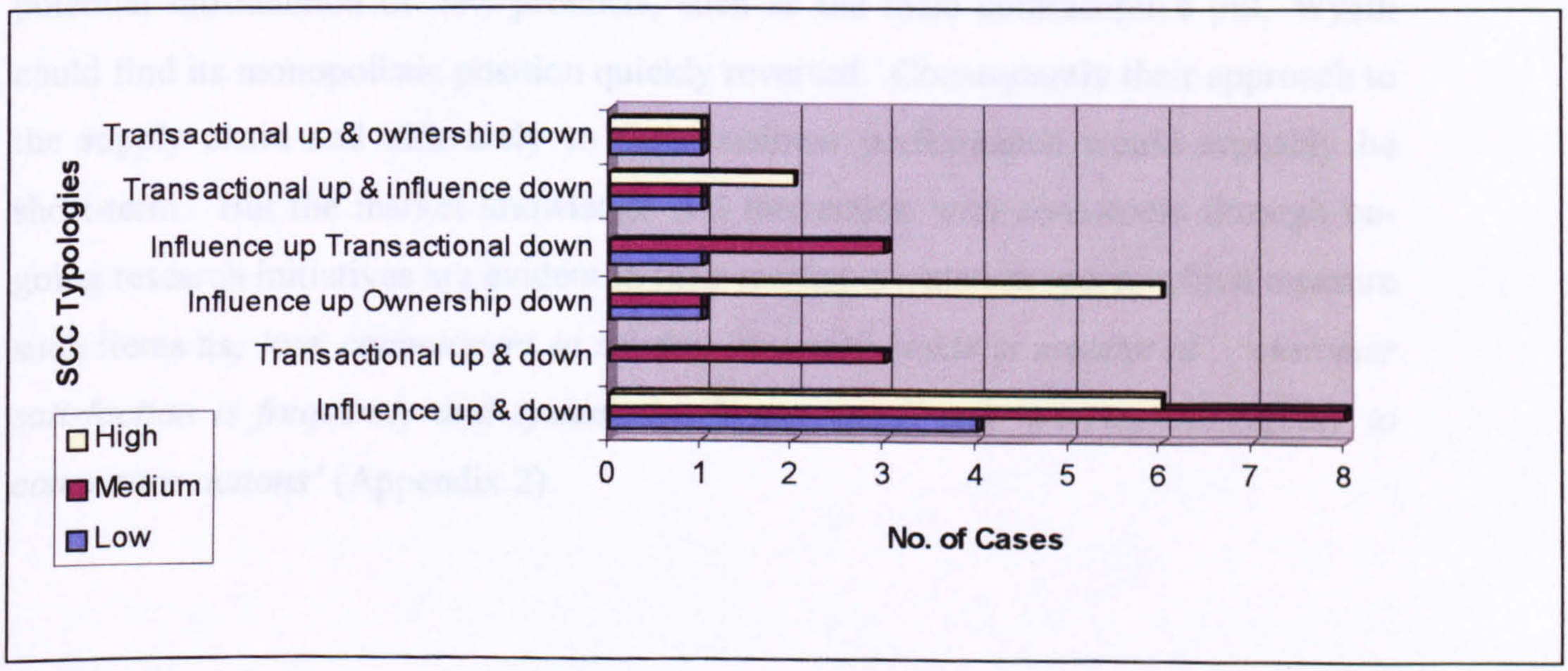
Inter-functional Co-ordination. The patterns displayed by the cross tabulation of inter-functional co-ordination with supply chain configurations (Figure 7.8) were broadly similar to those found in the customer orientation and competitor orientation analysis (Figures 7.6 and 7.7). However, we saw a greater percentage of firms demonstrating medium levels of inter-functional co-ordination, where in the analyses described above, they had shown high levels of customer orientation and competitor orientation. For example, the two key supply chain configurations that had previously demonstrated the greatest frequency of high level customer and competitor orientation (the influence/influence supply chain and the influence/ownership supply chain),

continued to demonstrate the greatest frequency of high level inter-functional co-ordination.

In this analysis high inter-functional co-ordination accounted for 34% of respondents adopting the influence/influence supply chain. Equally, 34% of respondents adopting the transactional/ownership supply chain configuration also reported high inter-functional co-ordination levels. Compare these results with the 62% of respondents reporting high levels of customer orientation and 45% reporting high competitor orientation for the influence/influence supply chain and 63% reporting high customer orientation and 88% high competitor orientation for the influence/ownership supply chain. Whilst many firms highlighted the crucial nature of inter-functional co-ordination during interviews, this result suggests that there may be some difficulties with its implementation.

Conversely the influence/transaction supply chain performed rather better on the inter-functional co-ordination criteria with 75% of firms recording high levels of inter-functional co-ordination compared with 50% recording low levels of customer orientation and competitor orientation. Only one firm was a high performer within this group.

Figure 7.8 The levels of inter-functional co-ordination found in the different supply chain configuration typologies.



7.5.2.1 Transactional Relationships Prevent Customer Relationships

We have suggested that forward non-integration, i.e. transactional relationships downstream, are only appropriate when the business venture was of a short-term opportunistic nature and/or when the firm is able to adopt monopolistic behaviour.[91] 17% of our cases adopted transactional relationships downstream. 86% were low performers.[92] This statistic was reflected in the low market orientation scores (Figure 7.9). The high performer achieved a high market orientation score. The low performers were split 50:50 between medium and low market orientation scores. The outlier in this group is the high performer, Wyeth Brothers, and as such deserves further attention.

According to our theory, firms that do not integrate downstream will fail in the long-term. Wyeth Brothers are pharmaceutical manufacturers of the most widely used contraceptive pill and as such have achieved a virtual monopoly within the UK market. This case provides an interesting exception to our theory. Wyeth's monopolistic position within the market place has given them power downstream in this highly regulated market. The drug wholesalers (the next stage in the supply chain), the doctors' surgeries and the pharmaceutical retail outlets (the final stages in the supply chain before the consumer) do not command influence downstream. This position, whilst not unique, is somewhat unusual. It could be reasoned that with the potential introduction of new products, such as the male contraceptive pill, Wyeth could find its monopolistic position quickly reversed. Consequently their approach to the supply chain and ultimately to their business performance would arguably be short-term. But the market knowledge and interaction with consumers through on-going research initiatives are evident in their market orientation scores which measure such items as, *'our commitment to serving customer needs is monitored'*, *'customer satisfaction is frequently and systematically measured'* and *'we respond rapidly to competitor actions'* (Appendix 2).

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[91] For a detailed discussion on monopolistic behaviour see Bowley (1928), Morgan (1949) and Arrow (1975).
[92] The remaining case was a high performer.

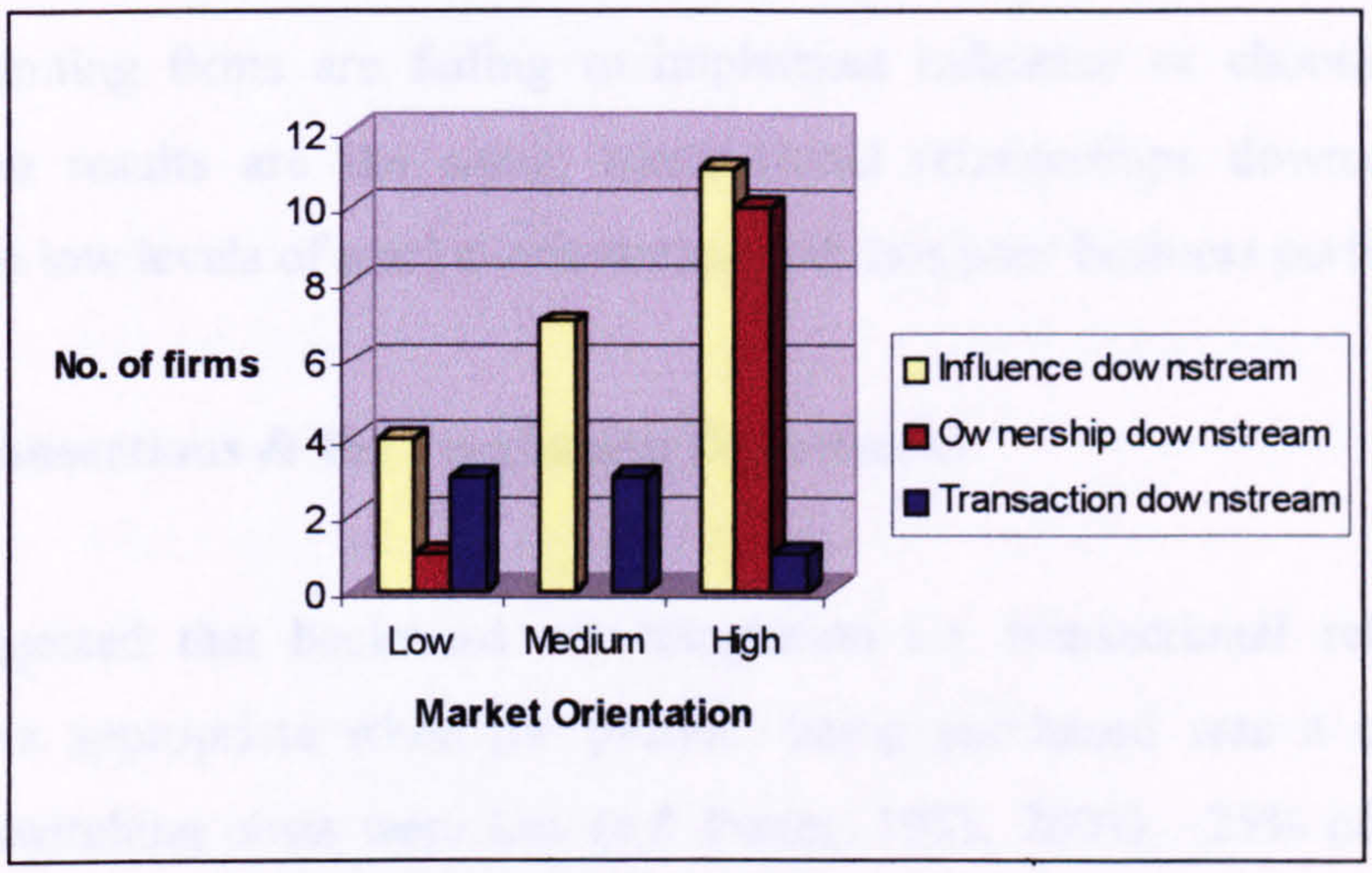
We suggest that it is the level of market orientation within the firm that has enabled Wyeth to correctly identify the most cost effective and efficient approach to their supply chain downstream. What Wyeth must hope is that, should they wish to introduce a new product themselves, or substitute products be introduced to the marketplace by their competitors in the future, they could generate sufficient influence quickly enough to sustain their position as market leaders. The supply chain director of Wyeth Brothers comments,

> *"well they* [the pharmaceutical wholesalers] *have to buy from us see, because there isn't really anyone else. And they're buying the same thing over and over again so there's no point making a big song and dance about it. They just say what they want and we send it as quickly as we can."*

This suggests that, whilst for all intents and purposes their relationship with downstream supply chain stages appear to be transactional, some of the dimensions associated with influence are present but not exercised. For example, their monopolistic position suggests they have channel power, their knowledge of the marketplace suggests the potential existence of channel leadership. Perhaps there is an interim stage between influence and transaction – a *'dormant'* or *'caretaker relationship'* that appears transactional on a day-to-day basis but has been carefully nurtured over the long-term. To date there is no empirical evidence supporting the existence of such relationships. The nearest we find to an explanation of this phenomenon is Grönroos' (1991) recognition of a *relationship continuum* but this does not necessarily imply the dynamic nature of relationships that seem in evidence here. These findings suggest the need for further research in this area. Maximising the effectiveness of an influential relationship whilst minimising the resources demanded by it has important implications for managers.

The majority of firms adopting a transactional approach downstream were low performers with lower levels of market orientation.

Figure 7.9 The Level of Market Orientation for Firms Integrating Downstream (either through influence or ownership).



As described in Chapter 6, four of the six firms in this group have endeavoured to create influence downstream but have found the approach nearly impossible to implement. The example of Jackel International in Chapter 6 (p.157) illustrates this point. Jackel Int. has failed to implement influence with one of their biggest national customers, Boots the Chemist. According to Jackel Int., Boots are trying to reduce the product to a commodity in the purchasing process whilst Jackel Int. is trying to create added value and a non-commodity product. Boots is simply trying to implement transactional relationships because they see no strategic benefits from creating a long-term relationship with this supplier, but this creates a head-on clash of objectives within the supply chain.

Jackel Int. has also had difficulties with inter-functional co-ordination. When the department collecting information behaves as though they own it, information is often consolidated in the wrong way or not at all. Managers then hold information on transactions by product-line rather than by customer. This makes offering the customer a single point of access virtually impossible and ignores important marketing segmentation tools. No matter what new technologies are introduced to these situations, without skilful management and an appropriate corporate culture, such integration systems are worthless.

The final two cases in this group are smaller businesses within which managers perceive demand to outstrip supply. They sell products to a limited number of existing customers. These companies appear to have little ambition and growth is not a priority for them. They have a short-term perspective on business performance and do not consider themselves a threat to market-leaders. What is clear is that whether the low performing firms are failing to implement influence or choosing not to develop it, the results are the same; transactional relationships downstream are associated with low levels of market orientation and thus poor business performance.

7.5.2.2 Transactions & the Purchasing Department

We have suggested that backward non-integration i.e. transactional relationships upstream, were appropriate when the product being purchased was a commodity and/or when switching costs were low (*c.f.* Porter, 1985, 2001). 25% of our cases adopted transactional relationships upstream. 70% of these firms were low performers and 30% high performers. Equally, 40% of these firms achieved low scores on the market orientation scale, 20% achieved medium scores and 40% high (Figure 7.10). In line with previous empirical findings in the market orientation literature (Narver & Slater, 1990; Gray, Matear, Boshoff & Matheson, 1998; Siguaw, Simpson & Baker, 1998; Sin *et al.*, 2000) it was the high performance firms that also achieved high scores on the market orientation scales.

If, as the discriminant analysis suggests (Chapter 7, Section 7.6.1), the method of integration a firm adopts affects the level of market orientation and business performance achieved, the question arises as to why the majority of firms adopting transactional relationships upstream are low performers? These firms come from different industries, as diverse as personal hygiene products and petrol, surgical equipment and sugar yet they all comply with one principle determinant - they are all purchasing commodity products. Bristol-Myers Squibb purchases enzymes, Shell - oil, Schering Health - plastic syringes and tableting processes, Tate & Lyle - sugar cane. And their reasons for using transactional relationships are also similar; *'we're purchasing a commodity, a high risk low price product, we let others take the risk and we buy what we want when we want it, it's more cost effective that way,'* (Tate &

Lyle) and *'what you have to invest is phenomenal, and the risk huge – it's not what we do any more, we used to but we got out, now we just buy it in* [oil].' (Shell).

These firms are apparently making sound strategic decisions, they are calculating the transaction cost, identifying alternative and most cost effective suppliers and then simply purchasing products on demand so that variable costs remain the over-riding percentage of their upstream expenses. So why then are the majority of the firms failing? Three contributors can be identified: 1) the method of integration they adopt downstream; 2) the unstructured and decentralised method of purchasing pursued within the organisation, and 3) the incorrect identification of the purchased products as commodities. Furthermore, even where a product has been correctly identified as a commodity, it has been argued that with any form of direct purchasing (i.e. the purchasing of materials/components that contribute directly to the manufactured final item)[93] reliability and trust matter (*c.f.* Cairncross, 2002). This suggests that all direct purchases require the development of a minimal level of influence. Take for example the case of Bristol-Myers Squibb (BMS).

Many of BMS's personal hygiene products such as shampoo, deodorants, hand cream and hair colours include the use of enzymes. Enzymes may appear to be a commodity because by definition there is little to distinguish one crate of enzymes from another and they have no *'unique selling features,'* they are what they are; thus far, we may well draw parallels with sugar cane, oil, or plastic syringes (commodities purchased by the high performing firms in this group). However, from this point on we see differences. Enzymes worldwide are only manufactured by two companies. Enzymes are a specialised product that requires a great deal of expertise to manufacture and transport - thus incurring high asset specificity (Williamson, 1975). Consequently, switching costs are high. If BMS were to have difficulties with their supplier then they would have only one alternative source. We see a similar situation in the case of Amivo, and to a lesser degree at Somerfield for some recipe product lines.[94] Whilst initially products appear to be commodities, alternative sources of supply are limited and switching costs are high. This would suggest that these firms should look to build

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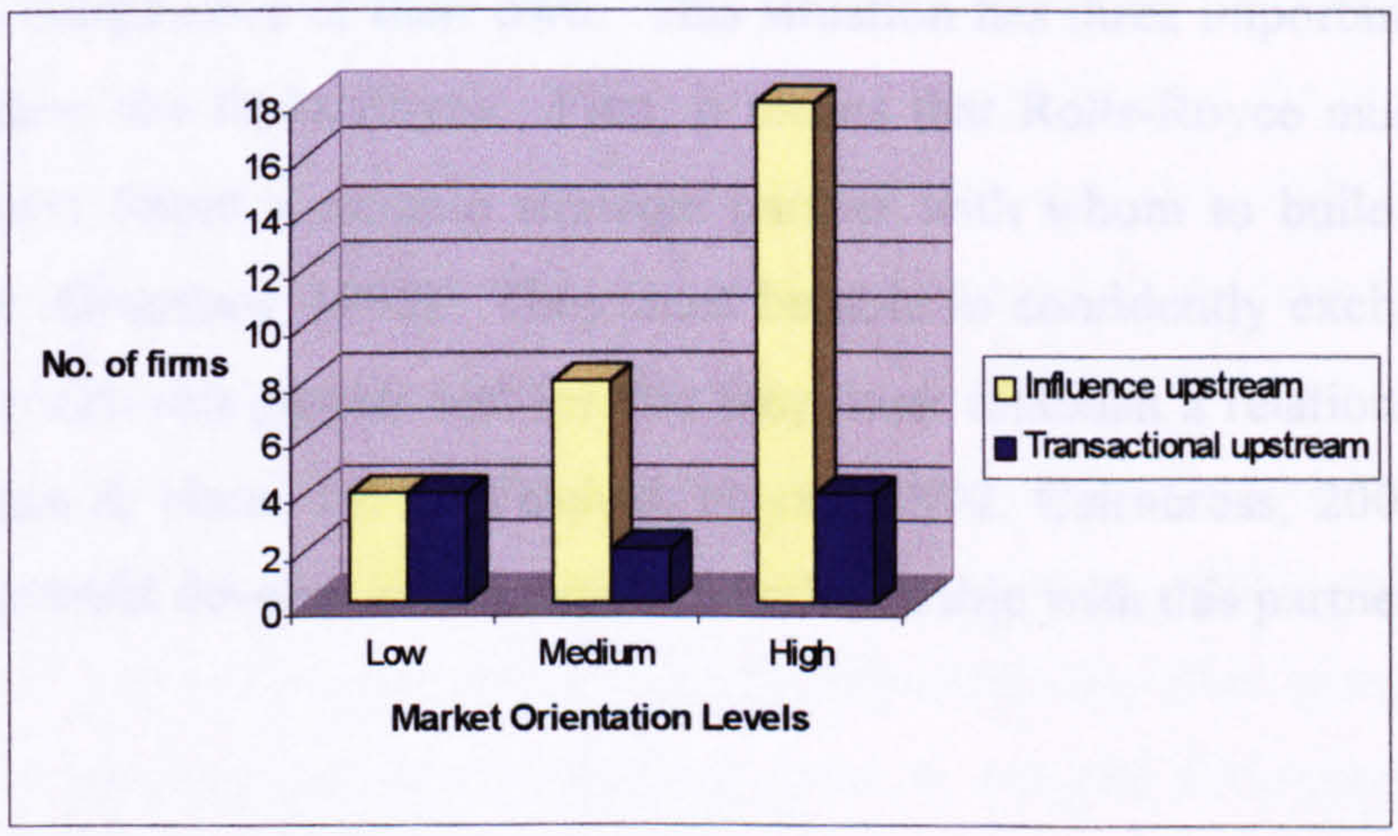
[93] The opposite to *'direct purchasing'* being *'indirect purchasing'* which includes any products that do not contribute directly to the end product, e.g. staples, paper, office chairs.

inter-firm relationships with specific suppliers, to create influence and work towards mutually beneficial goals thus avoiding the issue of switching costs completely. Firms clearly need to take care when defining products as commodities. Furthermore, they should remember the role influence could play in the inter-firm relationships developed with any direct purchase supplier.

The lack of an ability to correctly identify and build influence is thought to be partially attributable to the way in which the purchasing function is perceived and organised within these low-performing firms. Cairncross (2002) quotes a senior consultant with the Boston Consulting Group, who explains,

> *"Maintenance, repair operations typically account for 20% of the company's purchases but 80% of its orders...the cost of a purchase order is typically $100 – e-procuring costs, $10".* (p.117)

Figure 7.10 The Level of Market Orientation for Firms Integrating Upstream (either through influence or transactional relationships).



7.5.2.3 Influence & Strategic Sourcing

Integration through influence accounted for the 75% of our cases' supply chain configurations upstream. 43% of these firms were low performers and 57% high performers. Again the levels of market orientation achieved were generally closely

[94] Recipe product lines include ready meals developed to the retailer's recipes e.g. Lasagne, casseroles,

associated with the level of business performance.[95] As illustrated by Figure 8.2, 13% of firms achieved low market orientation scores, 27% achieved medium scores and 60% high.[96] So why should influence upstream be a successful strategy for some firms but not for others?

First there is the issue that influence upstream forms just part of the supply chain configuration (see sections 8.3.3 and 8.3.4). Despite this we can see some differences between the two groups. High performance firms fall into two groups; 1) those that recognise the services/products they are purchasing as not being a core competence to their firm but as integral to their final product offering (e.g. Rolls-Royce, BAe, Clarks) and 2) those purchasing what might be defined as commodities but where the purchaser seeks security of supply (Nutricia, Cadbury, Cannon Avent).

The first group of successful influence adopters are purchasers of technically complex components that are not core to the purchasing firm's competencies. For example, Rolls-Royce purchases gearing which is an integral part of the aviation engines they produce. They recognise gearing as a core competence of their supplier but do not see it as a core competence of their own. This situation has three important implications for a company like Rolls-Royce. First, it means that Rolls-Royce must be satisfied that they have found a suitable strategic partner with whom to build an inter-firm relationship (Grönroos, 1995). They must be able to confidently exchange valuable information with this partner and for this they must establish a relationship based on trust (Morgan & Hunt, 1994; Welch & Nayak, 1992; Cairncross, 2002) Secondly, Rolls-Royce must develop and maintain the relationship with this partner in such a

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mango ginger chicken etc.

[95] There was the exception of two cases which, though selected as low performers, achieved high market orientation scores.

[96] Two companies selected as low performance firms as part of the matched pairs sampling procedure were found to have recorded high levels of market orientation. This initially surprising finding can perhaps be explained by the case selection procedure. Our high performance firms were selected on the basis of their superior financial performance taken from published company sources. In turn each of the high performance firms recommended a low performance partner. Our two cases, Amivo and Alpha, demonstrate a comparatively low performance level when compared directly with their matched pair firms. They may even be considered low performers within their industry sector. However, they do not have a particularly low level of performance when compared with other firms considered in the financial press to be failing companies. This would explain what initially looked like an unexpectedly high level of market orientation and highlights a limitation of this sampling procedure (Section 8.6).

manner as to allow cross-functional teams of employees to move between the two companies as if they were one. As the purchasing director of Rolls-Royce observes,

> "... *we've moved to using our supplier's engineering capabilities more... We try and do it as part of an integrated product team so that we have Rolls-Royce engineers and suppliers as part of the same team who are working together. Because at the end of the day Rolls-Royce have to do the systems integration... it can't happen in isolation. Usually you can't just hand it over to a supplier and do it in an arms-length relationship. You need to be well integrated.*" (Rolls-Royce)

This suggests that relationships and ownership might truly be isomorphic (Mahoney, 1992), as in this situation, whereby the separability – or rather the lack of separability of supply chain activities - suggests the need for integration through ownership (D'Aveni & Ravenscroft, 1994). Yet Rolls-Royce has achieved integration through a tightly managed inter-firm relationship.

The second group of influence adopters are those purchasing what might be defined as commodities. What these two groups have in common is that the purchased goods are an integral part of their firm's end product. This might seem unlikely but consider the example of Nutricia. They deem consumer demand for organic and GM[97] free products to be central to their product offering. Therefore, they secure the limited supply of what would otherwise be defined as commodities of raw materials (such as wheat and honey) through long-term influential relationships with producers. Whilst Nutricia recognise the importance of security of supply they also recognise the costs and risks of upstream ownership and cite these as reasons for integration through influence upstream.

It is not that low performance firms are not adopting co-ordination technology, rather that they have difficulties in building and maintaining inter-firm relationships. They have difficulty in identifying when influence is important to them. Investing time and valuable resources in building influence through inter-firm relationships upstream was found to be inappropriate in circumstances where the product being purchased was a

commodity and switching costs were low. For example, Weetabix[98] (a low performer) formed long-term relationships with local grain suppliers over which they had a high degree of influence; however their high performing matched pair, Kellogg, purchased grain on the spot market buying on quality and price. In this case it seems that Kellogg's approach to upstream integration was more appropriate. Similarly Jackel International have become so focused on the building of influence in upstream relationships, they seem to have seriously neglected the customer-facing stages downstream.

Our results indicate that both transaction and influence relationships upstream can be associated with high levels of market orientation and business performance but that there are criteria, or *'determinants'* that suggest when each approach is most appropriate. Above all, upstream integration is concerned with the traditional supply chain perspectives. This is the efficiency perspective – production and control - and whilst crucial to a firm's performance (Quinn & Hilmer, 1995; Langabeer & Rose, 2001) it is only half the story. Whichever approach is considered most appropriate in any circumstance, it must be considered in conjunction with downstream integration – the customer-facing supply chain activities.

7.5.2.4 Ownership & Innovation

The ownership or outsourcing of supply chain stages has long been an issue for debate (*c.f.* Johnston & Lawrence, 1988; Quinn & Hilmer, 1995; Lonsdale & Cox, 1998). With the increased emphasis of business on intangible assets, firms are seeking to reduce the tangible assets they own, (e.g. Doyle, 1995; Abrahams, 1996; Porter, 1996). The outsourcing decisions they reach must ensure that companies focus on core competencies without threatening long-term performance (*c.f.* Doyle & Hooley, 1992; Day, 1994; Porter, 1996). Firms must create their own opportunities through research, development and innovation. Innovation once again raises questions about the way a firm develops and shares ideas. As Cairncross (2002) observes, if innovation is distanced from the main company something may be lost. This is a strong argument for ownership, but as Cairncross goes on to explain, much can be

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[97] Genetically Modified
[98] Chapter 6 (p.176)

gained from collaborative innovation – the balance is a fine one. She suggests how firms might take advantage of the more innovative, entrepreneurial climate in small companies by buying a stake in a portfolio of little businesses with good proposals and then helping them to develop and launch their products. This approach essentially turns the big company into a venture capitalist, outsourcing both innovation and some of the risk. In general it is easier for companies to *'buy in'* innovation than to *'make'* it in-house. For example, BAe formed a strategic alliance with a Japanese manufacturer (naming the new venture Silicon Systems Ltd.), in order to deliver highly sophisticated and technologically advanced giros to the global market place.

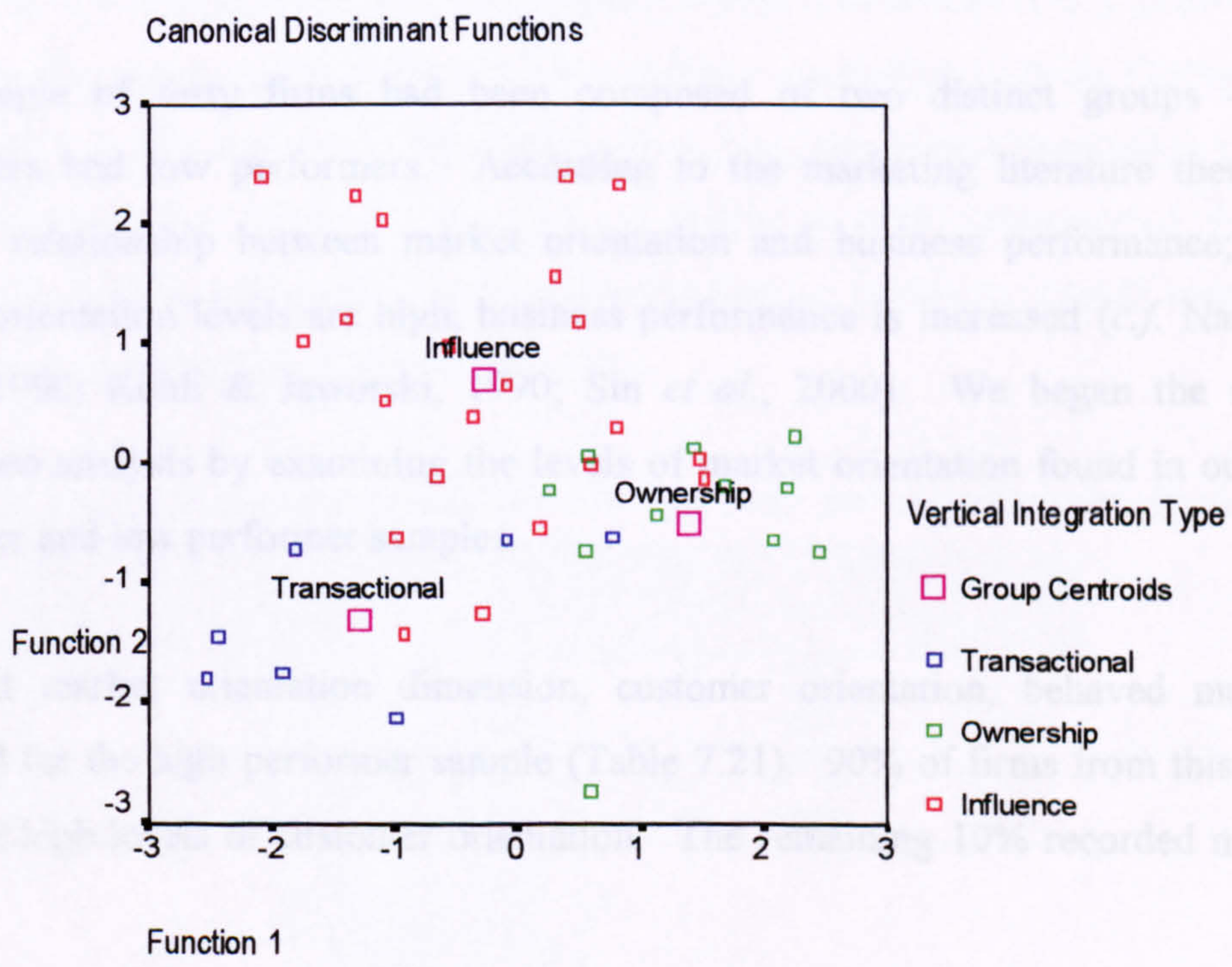
Cairncross (2002) suggests that bringing innovation to new business models will be as important as creating new products. This is partly because so much innovation now involves maximising the potential of the Internet to deliver existing services in new ways, e.g. online shopping. The Internet opens up all sorts of opportunities for trying out new business models and cuts the costs of experimenting. Ownership was adopted as the predominant method of business downstream by 27% of firms interviewed. Reasons cited by interviewees for downstream ownership included; '*accident of history, it's what we do*', Somerfield; *'it's the best, most profitable place to be in the entire supply chain* [because]*...we get a handle on what the customer really wants. We deal with them all-day and everyday. We know who they are and what they want'*, Tesco; *'it enables us to really understand our customers'*, Clarks; and *'it means we can get all the info* [information] *we need to develop new products that the consumer really wants'*, Nutricia. Companies seem increasingly aware of the opportunities that downstream integration can bring. Our findings support Cairncross's (2002) theory that firms are increasingly shifting their attention to the effectiveness of their business strategies and focusing on the development of customer relationships is key in this role.

Some of the more innovative forms of ownership downstream acknowledge and avoid some of the risks traditionally associated with this approach. For example, Clarks have achieved partial ownership downstream through franchise agreements with retailers (Chapter 6, p.174). Information technology plays an increasingly important role in such models. Innovation feeds on shared knowledge particularly when that

shared knowledge is coming directly from the customer. Our results found that firms adopting downstream ownership tended to out-perform firms that had not integrated downstream both on the market orientation and business performance variables (Figures 7.18 and 7.19). Figure 7.11 illustrates the positioning of the group centroids identified through a discriminant analysis of the three categories of downstream integration (transactional, influence and ownership). This clearly shows that firms pursuing integration downstream, either through ownership or influence, are more likely to have high business performance levels than firms that adopt transactional relationships.

This concept of ownership is an important and long recognised component of the supply chain configuration construct (*c.f.* Williamson, 1975; Hunt, 1995; Harrigan, 1986) but this research is original in its association of supply chain configuration with market orientation in order to leverage business performance. The recognition of three distinct approaches to supply chain configuration – transaction, influence and ownership – and their particular advantages or disadvantages dependent on their positioning in the supply chain is an important contribution to both the market orientation, vertical integration and resource base literature.

Figure 7.11 Canonical discriminant function illustrating the group centroids for three methods of integration downstream of the supply chain and two business performance functions (where function 1= financial performance and function 2 = customer performance.)



These findings lead us to reconsider Harrigan's work (1984; 1985a; 1985b; 1985c; 1986). Harrigan (1985c) identifies five dimensions of supply chain configuration; form, direction, stages, degree and breadth. Our empirical findings suggest that influence is a further dimension of supply chain configuration. As we have seen, its impact on supply chain configuration is profound and, therefore, central to the construct. Furthermore, the capabilities presented through Internet technologies are offering managers new opportunities to redevelop old business models in order to capitalise on the wealth of knowledge and innovation held within the firm.

7.5.3 Market Orientation

This section examines the relationship proposed by our third hypothesis:

$H_{0/3}$: Business performance will not be significantly influenced by market orientation.

and subsequent sub-hypotheses:

$H_{0/3a}$: There is no significant difference between high and low performance firms and the level of customer orientation.

$H_{0/3b}$: There is no significant difference between high and low performance firms and the level of competitor orientation.

$H_{0/3c}$: There is no significant difference between high and low performance firms and the level of inter-functional co-ordination.

Our sample of forty firms had been composed of two distinct groups – high performers and low performers. According to the marketing literature there is a positive relationship between market orientation and business performance; when market orientation levels are high, business performance is increased (*c.f.* Narver & Slater, 1990; Kohli & Jaworski, 1990; Sin *et al.*, 2000). We began the market orientation analysis by examining the levels of market orientation found in our high performer and low performer samples.

The first market orientation dimension, customer orientation, behaved much as expected for the high performer sample (Table 7.21). 90% of firms from this group recorded high levels of customer orientation. The remaining 10% recorded medium

levels. This was a good result and suggests that a positive relationship does exist between customer orientation and business performance.

Table 7.21 Levels of Customer Orientation divided into high and low performance firms.

Customer Orientation Levels	% of High Performer	% of Low Performer	Total
Low	0%	40%	20%
Medium	10%	45%	27.5%
High	90%	15%	52.5%
Total	100%	100%	100%

The divide amongst the low performer sample was not quite as clear cut, with 15% recording high levels of customer orientation. Whilst our sample size should be borne in mind as a limitation to such analysis, it was still clear that just one third of our low performers recorded low levels of customer orientation and a further 45% recorded medium levels. The question arises as to why any low performance firms might have high customer orientation. Two possibilities were explored. First, we needed to see how the low performance firms performed on the other market orientation dimensions. Secondly, we needed to explore in more detail what business performance meant and how it was measured. Chapter 5 examines the sampling methodology in some detail, suffice to say primary data on business performance was also collected from each firm and is discussed in Section 7.5.4.

The second dimension of market orientation is competitor orientation. The divide for the high performer group is a repeat of the customer orientation analysis (Table 7.22). 90% of the firms in this group reported high levels of competitor orientation with no firms reporting low levels. The low performer sample incorporated 90% of respondents with low or medium competitor orientation. However, a small proportion (2 firms) recorded high competitor orientation.

Table 7.22 Levels of Competitor Orientation divided into high and low performance firms.

Competitor Orientation Levels	% of High Performer	% of Low Performer	Total
Low	0%	55%	27.5%
Medium	10%	35%	22.5%
High	90%	10%	50%
Total	100%	100%	100%

Some of our high performance firms scored less well on the third market orientation dimension. 15% of firms reported low level of inter-functional co-ordination (Table 7.23). But 85% of firms in this group reported high or medium levels suggesting a positive relationship between market orientation and business performance.

The majority of low performance firms scored a medium level of inter-functional co-ordination. This result was perhaps surprising because, in accordance with previous research, it might have been anticipated that low performance firms did not integrate firms to serve target markets, share information about customer experiences between functions, or have top managers visit customers (Narver & Slater, 1990). Again this anomaly might be due to the sample size or the method of sample selection (see Section 5.2.6). Just one firm in this group reported high levels of inter-functional co-ordination.

Table 7.23 Levels of Inter-functional Co-ordination divided into high/low performance firms.

Inter-functional Co-ordination Levels	*% of High Performer*	*% of Low Performer*	*Total*
Low	15%	25%	20.0%
Medium	15%	70%	42.5%
High	70%	5%	37.5%
Total	100%	100%	100%

7.5.4 Business Performance

This section explores in more detail the proposed relationship between market orientation and business performance through the adoption of a balanced scorecard approach to business performance (Kaplan & Norton, 1992). This enable us to explore the further sub-hypothesis to $H_{0/3}$ discussed in section 7.5.3 above. The sub-hypotheses include:

$H_{0/3d}$: There is no significant difference between financial performance firms and the level of customer orientation.

$H_{0/3e}$: There is no significant difference between financial performance and the level of competitor orientation.

$H_{0/3f}$: There is no significant difference between financial performance and the level of inter-functional co-ordination.

$H_{0/3g}$: There is no significant difference between customer performance and the level of customer orientation.

$H_{0/3h}$: There is no significant difference between customer performance and the level of competitor orientation.

$H_{0/3i}$: There is no significant difference between customer performance and the level of inter-functional co-ordination.

$H_{0/3j}$: There is no significant difference between innovation performance and the level of customer orientation.

$H_{0/3k}$: There is no significant difference between innovation performance and the level of competitor orientation.

$H_{0/3l}$: There is no significant difference between innovation performance and the level of inter-functional co-ordination.

$H_{0/3m}$: There is no significant difference between internal business performance and the level of customer orientation.

$H_{0/3n}$: There is no significant difference between internal business performance and the level of competitor orientation.

$H_{0/3o}$: There is no significant difference between internal business performance and the level of inter-functional co-ordination.

Initially our sample of forty firms had been selected using published sets of financial criteria to identify the high performance sample of twenty firms. Each firm was then contacted and asked to suggest a low performing competitor. This then gave a matched pairs sample of firms with a high and low performer operating in the same industry and competing in the same field. Whilst this gave us a broad idea about the financial business performance levels of these firms we were interested to see how firms were performing against other performance criteria, including those associated with the balance scorecard approach (Kaplan & Norton, 1992). This approach divides performance into four key perspectives; financial, customer, innovation and learning and the internal business perspective.

For each of the four perspectives, we began by looking at the overall responses from all forty firms. We then divided the sample into their predefined high performer/low performer groups. Finally we carried out cross tabulations of the performance criteria against the three market orientation dimensions.

Financial Perspective. This form of business performance is concerned with how a firm looks from the outside – to its stakeholders and shareholders. We collected data from traditional financial measures including return on assets, return on equity, sales growth, brand equity, total sales revenue and total profit revenue. Finally we asked how firms rated shareholder value.

Firms were asked to rate their business unit's performance relative to all other competitors in their principle served market segment over the past year. 57% of respondents stated that their ROA was less than 40% better than their competitor's. Similarly 55% reported their ROE to be less than 40% better than their competitor's. As these bands of performance were at the lower end of our scale, this would suggest that all of our firms, including what we labelled the '*low performer*' sample, were healthy companies. It should be noted that our high performance firms frequently reported themselves to be market leaders. Also our low performance sample were not failing companies, their performance was described by their identifying matched pair as being '*significantly lower*' than themselves (see Chapter 5, p.125).

As with ROA and ROE, the total sales revenue and total profit revenues for the last year were fairly evenly spread across the five categories (ranging from <£10 millions to >£60 millions for sales and >£5 millions to >£50 millions for profit). Exactly 50% of firms rated the shareholder value created by their business unit as being either good or very good. We had expected our high performance firms to be better at creating shareholder value than the low performance firms and this was indeed the case.

The high performer sample included 60% of respondents claiming ROA and ROE as being greater than 41% better than their competitors and 75% of this group reported sales of £50 millions or more. 60% reported profit as being £35 millions or more and 95% considered their business units' performance to be market-leader performance.

Only one firm disagreed with this statement. From the financial perspective our high performer sample was proven to consist of high performance firms.

The twenty firms comprising the low performer sample included 80% of respondents claiming ROA and ROE to be less than 40% better than their competitors' and 55% of

respondents reports sales of less than £50 millions. 70% reported profit as being less than £35 millions. Only one firm from this group considered their performance to be market-leader performance. From the financial perspective the performance of these companies was found to be consistently lower than their matched pairs.

Figure 7.12 The level of competitor orientation compared with the level of ROA relative to that firm's competitors.

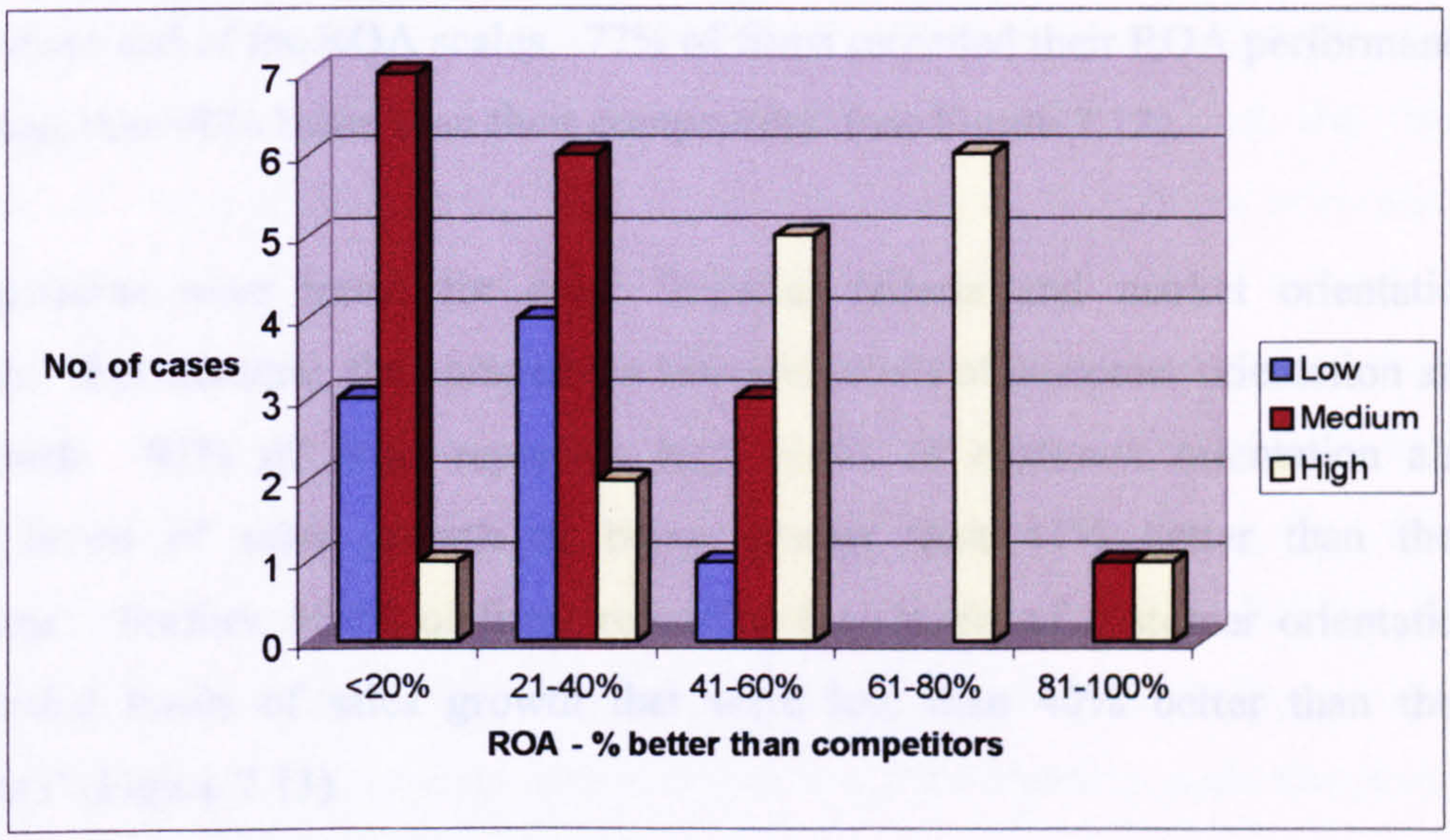
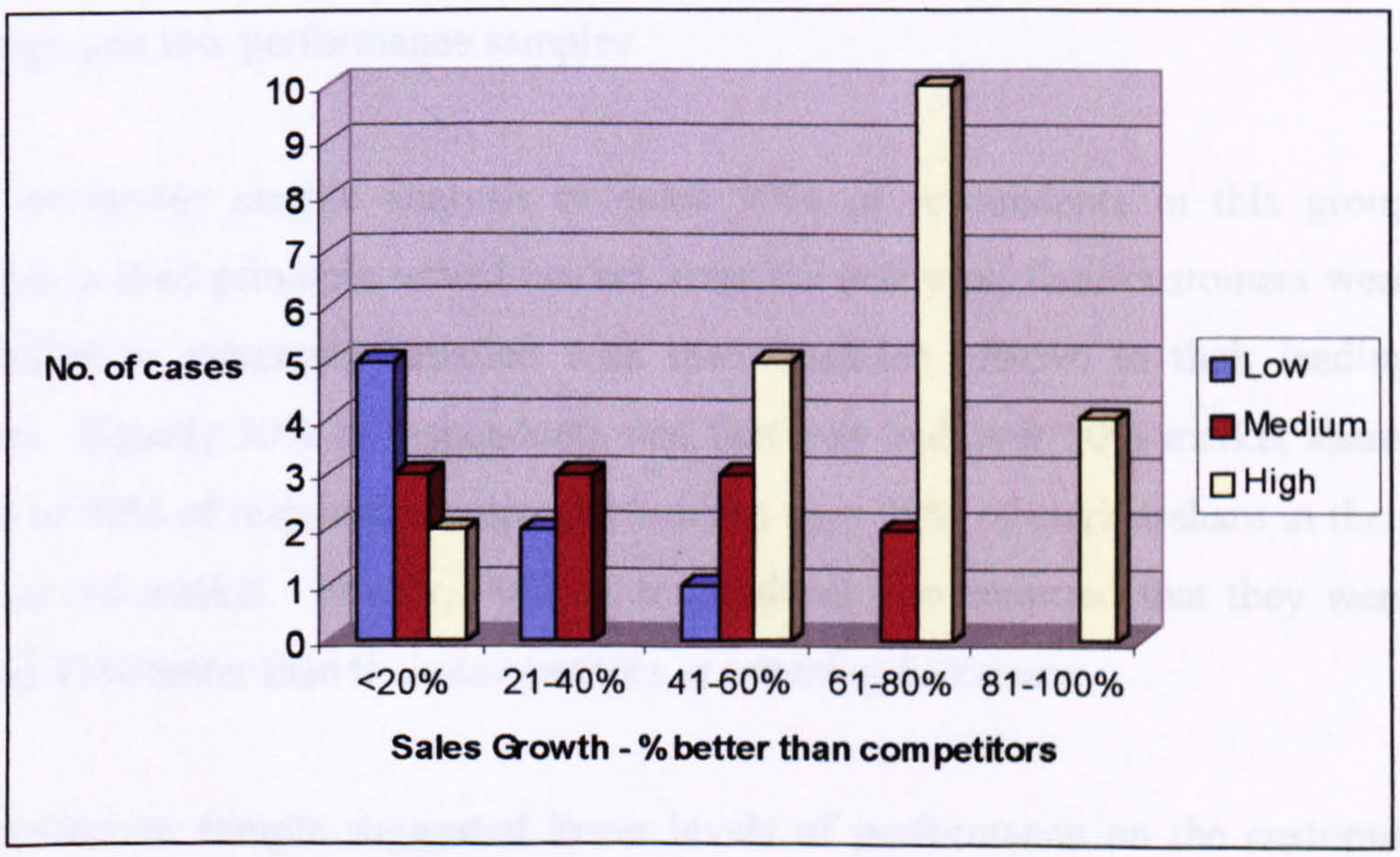


Figure 7.13 The level of customer orientation compared with the level of sales growth relative to that firm's competitors.



Comparing the financial perspective of business performance with the three market orientation dimensions we found the greater the level of the market orientation dimension, the more frequently these firms were identified as high performers on the financial criteria. For example, 80% of firms that recorded high levels of competitor orientation also reported high levels of ROA relative to their competitors (Figure 7.12). Equally 88% of firms recording low levels of competitor orientation also recorded low levels of ROA. Medium levels of competitor orientation were associated with the lower end of the ROA scales. 77% of firms recorded their ROA performance as being less than 40% better than their competitors' (see Figure 7.12).

Similar patterns were found for other financial criteria and market orientation dimensions. For example, the comparison between levels of customer orientation and sales growth. 91% of firms reporting high levels of customer orientation also recorded levels of sales growth as being greater than 41% better than their competitors'. Further, 100% of firms recording low levels of customer orientation also recorded levels of sales growth that were less than 40% better than their competitors' (Figure 7.13).

Customer Perspective. This form of business performance is concerned with how customers view the firm. We collected data on customer retention, customer satisfaction and market share. We began the analysis by comparing the responses from the high and low performance samples.

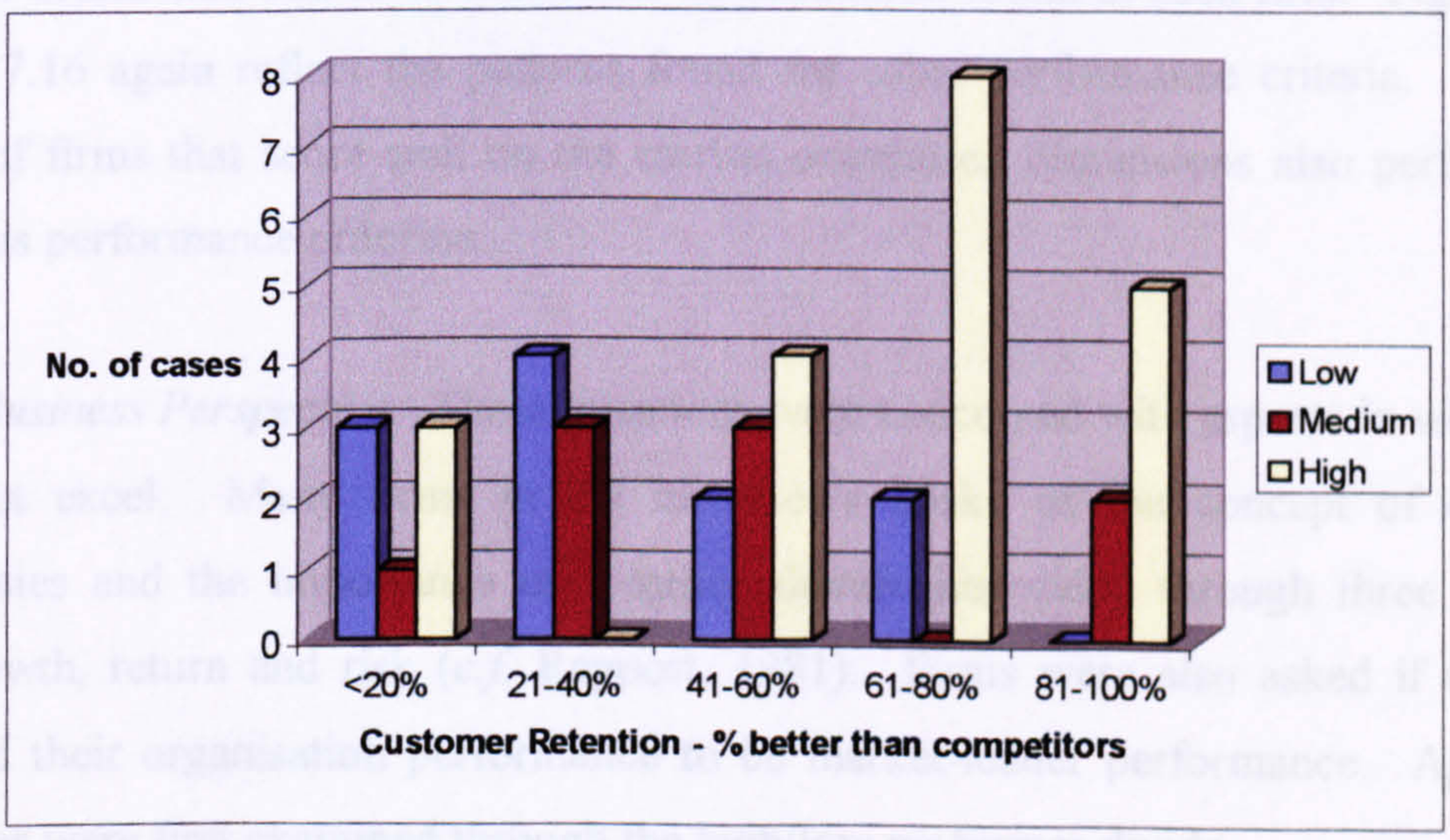
The high performer sample analysis revealed 90% of respondents in this group reported that in their principle served market, over the past year, their customers were either satisfied or extremely satisfied with their business relative to their leading competitors. Equally 30% of respondents said that they had over 50% market share, and a total of 90% of respondents reported holding over 20% of market share in their principle served market. Finally, 90% of respondents also reported that they were greater than 41% better than their competitors at retaining customers.

The low performer sample suggested lower levels of performance on the customer focused criteria. 70% of low performer respondents reported low levels of customer satisfaction. Equally 75% of respondents reported having less than 20% market share

in their principle served market. Variation in industry sector must be borne in mind here as some industries are far more fragmented than others, for example, compare the car components aftermarket with the pharmaceuticals industry or bitumen market. Finally, 60% of respondents in this group reported low levels of customer retention. All firms in this sample reported customer retention as being lower than that of their matched pair partner.

Having compared the high and low performer samples for their performance from the customer perspective, we then examined each of the criteria against the three dimensions of market orientation. For customer orientation, competitor orientation, and inter-functional co-ordination, all firms that scored at the lower end of the customer retention scale also tended to score at the lower end of the customer retention and customer satisfaction scales. For example, 50% of our firms demonstrated lower levels of customer retention. On the cross tabulation, these firms also performed less well on the customer retention criteria. 35% of firms also performed poorly on the inter-functional co-ordination criteria. Similarly, as Figure 7.14 illustrates, firms' scoring more highly on the customer retention scale also scored more highly on the competitor orientation scale.

Figure 7.14 The level of competitor orientation compared with the level of customer retention relative to that firm's competitors.



Similar patterns to those illustrated in Figure 7.14 were also found in the analysis of customer satisfaction with customer orientation, competitor orientation and inter-functional co-ordination.

Innovation and Learning Perspective. These questions were concerned with measuring how firms continue to improve and create value. To help us understand if innovation and learning were in evidence in our firms we asked them to rate their business unit's performance on new product success, relative to all other competitors in their principle served market segment over the last year. Once again we began the analysis by examining the high and low performer samples independently.

90% of our high performance firms reported high levels of new product success (i.e. above 41% better than their competitors) whereas 75% of our low performer firms reported low levels of new product success. This was further evidence to support our high/low performer divide between the two samples. Where firms had high financial and customer performance, we also found high levels of new product success, which was interpreted as evidence of innovation and learning (*c.f.* Moreau, Lehmann & Markman, 2001).

New product success was also compared with the levels of customer orientation, competitor orientation and inter-functional co-ordination found at each firm. Figures 7.15 and 7.16 again reflect the patterns found for other performance criteria. The majority of firms that score well on the market orientation dimensions also perform well on this performance criterion.

Internal Business Perspective. These questions were concerned with aspects in which firms must excel. Many firms in the interviews spoke of the concept of core competencies and the importance of creating shareholder value through three key areas; growth, return and risk (*c.f.* Rapport, 1981). Firms were also asked if they considered their organisation performance to be market-leader performance. Again the samples were first examined through the high/low performer divide.

Figure 7.15 The level of competitor orientation compared with the level of new product success relative to that firm's competitors.

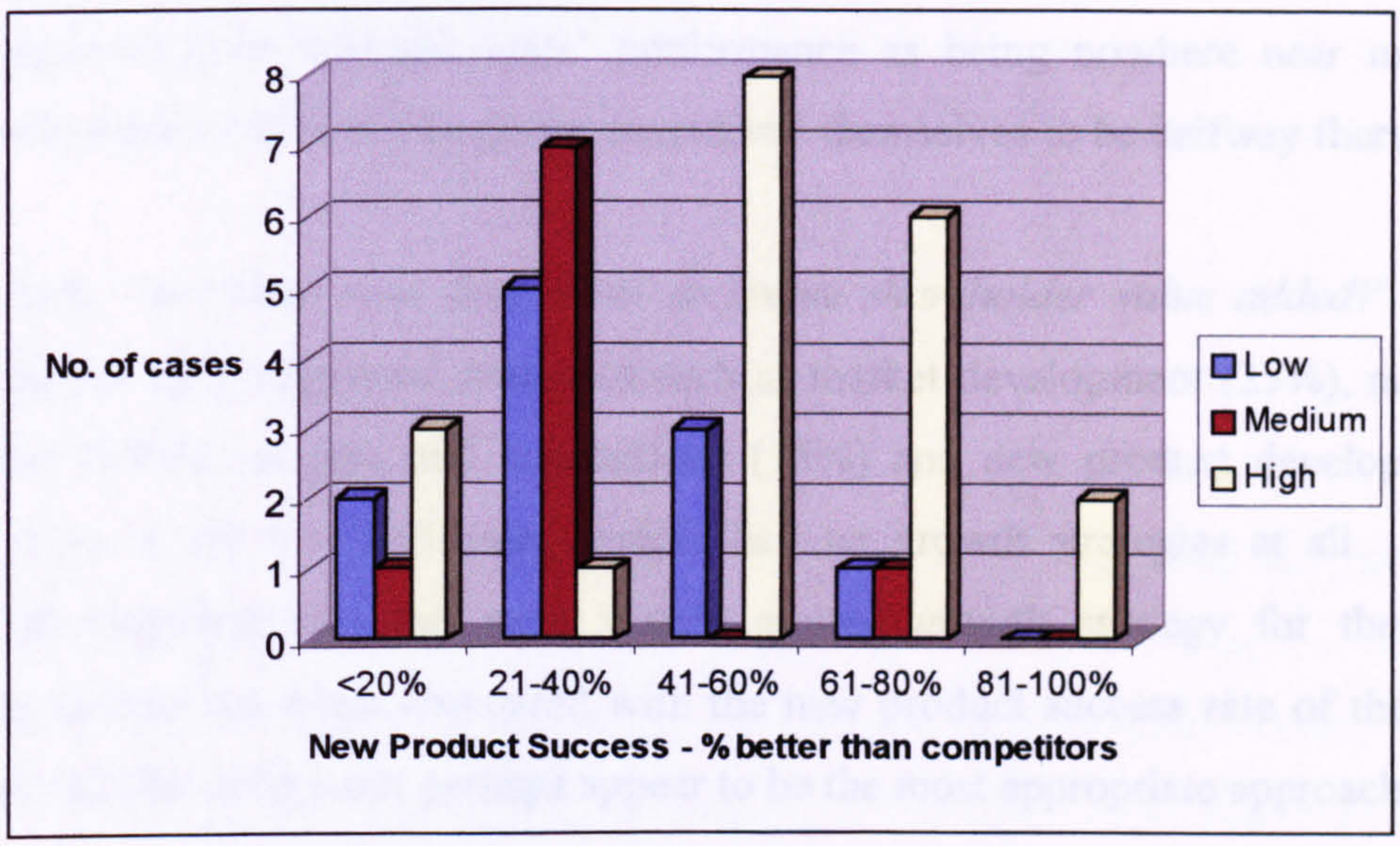
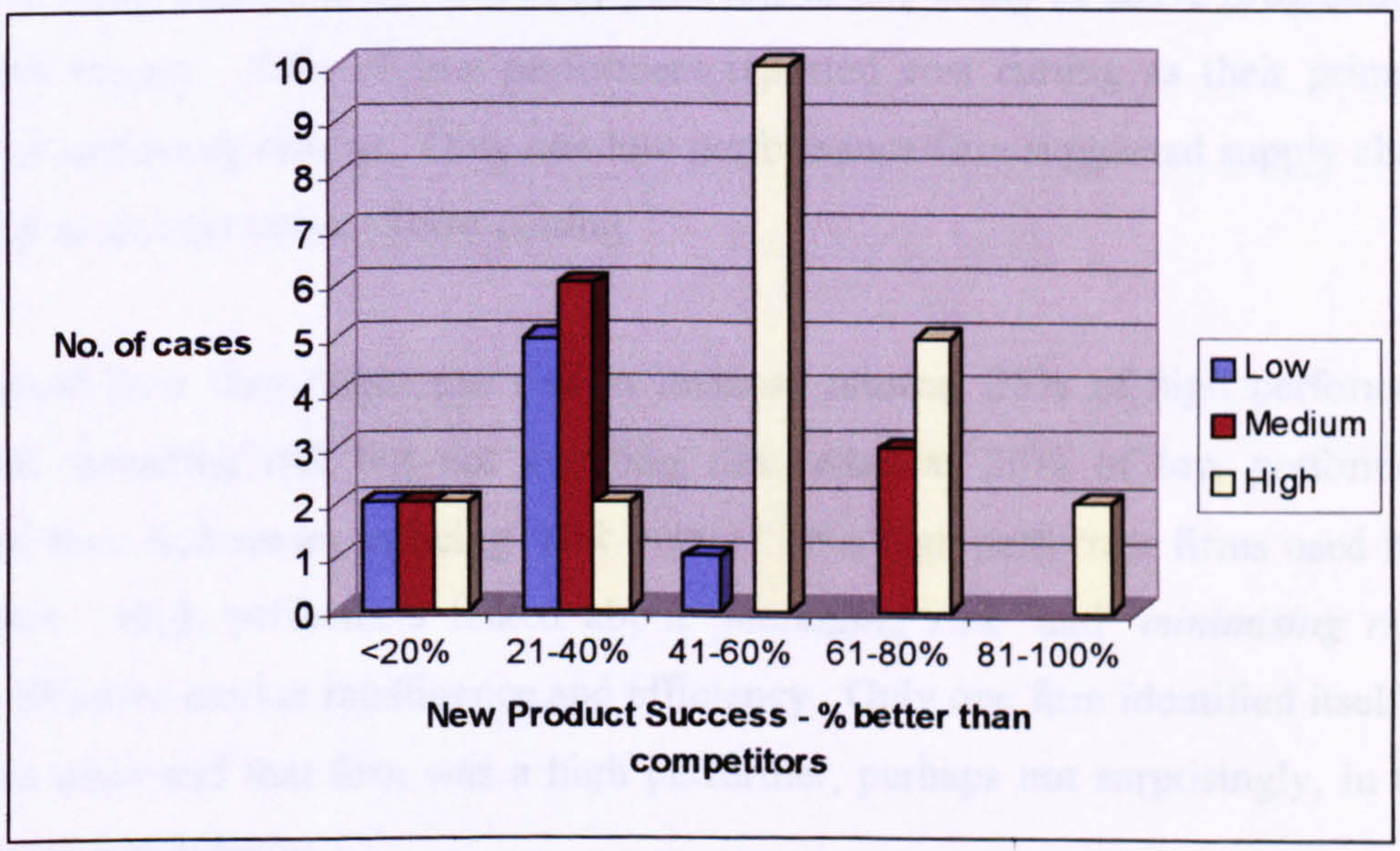


Figure 7.16 The level of customer orientation compared with the level of new product success relative to that firm's competitors.



80% of respondents from the high performer sample reported their business units' performance as being market leader performance whereas 50% of the low performer sample reported their business units' performance as being nowhere near market leader performance (45% of this group considered themselves to be halfway there).

When asked, "*how does your firm drive or create shareholder value added*?" high performers typically suggested strategies such as market development (25%), market penetration (35%), mergers and acquisitions (15%) and new product development (13%). 55% of the low performer sample had no growth strategies at all. New product development was the most widely quoted growth strategy for the low performer sample but when compared with the new product success rate of the low performer sample, it does not perhaps appear to be the most appropriate approach.

When asked how they might increase returns to their business unit, the high performance firms quoted cost reduction as their key driver. Supply chain efficiency and outsourcing were cited by 50% of respondents in this group as active programmes to achieve targets. 25% of low performers reported cost cutting as their primary method of increasing returns. Only one low performance firm suggested supply chain efficiency as an alternative to cost cutting.

When asked how they might use risk to increase returns, 25% of high performers suggested spreading risk but not avoiding risk, whereas 20% of low performers described their businesses as being *'risk averse'*. No high performer firms used this description. High performers talked about *'managing risk'* and *'minimising risk'* through effective market intelligence and efficiency. Only one firm identified itself as a big risk taker and that firm was a high performer, perhaps not surprisingly, in the pharmaceuticals industry.

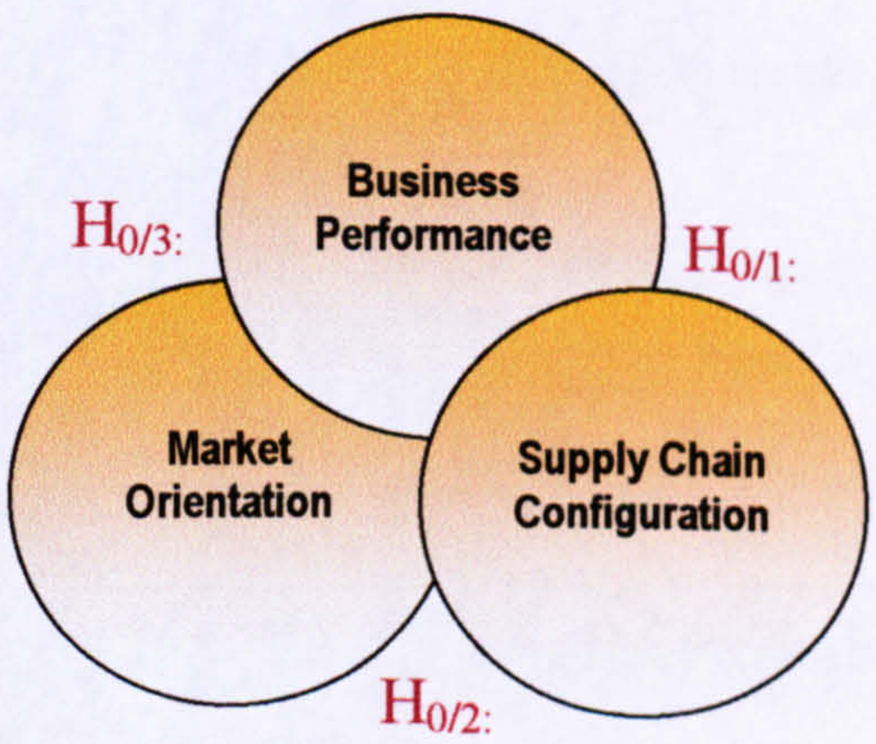
The relationship of this performance perspective with the three market orientation dimensions mirrored previous findings. High performers were more likely than low performers to take risks and have in place effective growth strategies. Also, several high performers (eight firms) discussed the importance of strategy effectiveness (*c.f.* Langabeer & Rose, 2001). This response was not forthcoming from any low performance firms.

Overall, whilst the balanced scorecard approach reflected a much broader interpretation of business performance, there were no indications that market orientation was particularly related with any one performance perspective. It appears, from the descriptive analysis, that market orientation is positively associated with all four performance perspectives (also see Section 7.6.2).

7.6 Hypothesis Testing

The previous section has provided detailed information and described the patterns found within our samples. In this section we test key hypotheses using our sample data. For the purpose of hypothesis testing, our research questions have been framed in terms of their null hypothesis. For example, $H_{0/1}$ represents the null hypothesis and indicates no significant difference between high performance and low performance firms. Acceptance of the alternative hypothesis ($H_{1/1}$) indicates high performance firms are significantly different from low performance firms. We use this approach to examine the relationships between business performance, supply chain configuration and market orientation in the hypotheses laid out below. Due to the limitation imposed through sample size, two methods of hypothesis testing have been employed, discriminant analysis and measuring association through Lambda.

Figure 7.17 The three key hypothesised relationships are represented through the three possible relationships between supply chain configuration, market orientation and business performance.



Three key hypotheses represent the three possible relationships theorised between supply chain configuration, market orientation and business (see Figure 7.17). As we have seen, these three hypotheses are supported by sub-hypotheses that explore in detail, the nature and strength of the relationships.

Key Hypothesis $H_{0/1}$:

$H_{0/1}$: There will be no significant difference between the level of business performance achieved by a firm and the supply chain configuration adopted.

Sub-hypotheses:

$H_{0/1a}$: There will be no significant difference between the level of business performance achieved by a firm and the method of integration adopted upstream.

$H_{0/1b}$: There will be no significant difference between the level of business performance achieved by a firm and the method of integration adopted downstream.

Key Hypothesis $H_{0/2}$:

$H_{0/2}$: There will be no significant difference between the supply chain configuration adopted and the level of market orientation achieved.

Sub-hypotheses:

$H_{0/2a}$: There will be no significant difference between the supply chain configuration adopted and the level of customer orientation.

$H_{0/2b}$: There will be no significant difference between the supply chain configuration adopted and the level of competitor orientation.

$H_{0/2c}$: There will be no significant difference between the supply chain configuration adopted and the level of inter-functional customer orientation-ordination.

Key Hypothesis $H_{0/3}$:

$H_{0/3}$: Business performance will not be significantly influenced by market orientation.

Sub-hypotheses:

$H_{0/3a}$: There is no significant difference between high and low performance firms and the level of customer orientation.

$H_{0/3b}$: There is no significant difference between high and low performance firms and the level of competitor orientation.

$H_{0/3c}$: There is no significant difference between high and low performance firms and the level of inter-functional co-ordination.

$H_{0/3d}$: There is no significant difference between financial performance firms and the level of customer orientation.

$H_{0/3e}$: There is no significant difference between financial performance and the level of competitor orientation.

$H_{0/3f}$: There is no significant difference between financial performance and the level of inter-functional co-ordination.

$H_{0/3g}$: There is no significant difference between customer performance and the level of customer orientation.

$H_{0/3h}$: There is no significant difference between customer performance and the level of competitor orientation.

$H_{0/3i}$: There is no significant difference between customer performance and the level of inter-functional co-ordination.

$H_{0/3j}$: There is no significant difference between innovation performance and the level of customer orientation.

$H_{0/3k}$: There is no significant difference between innovation performance and the level of competitor orientation.

$H_{0/3l}$: There is no significant difference between innovation performance and the level of inter-functional co-ordination.

$H_{0/3m}$: There is no significant difference between internal business performance and the level of customer orientation.

$H_{0/3n}$: There is no significant difference between internal business performance and the level of competitor orientation.

$H_{0/3o}$: There is no significant difference between internal business performance and the level of inter-functional co-ordination.

7.6.1 Discriminant Analysis

The data collected for this thesis involved category data. Firstly, the cases were selected on the basis of their business performance, forming two distinct categories; high performers and low performers. Secondly, each case was labelled according to its supply chain configuration typology – six distinct supply chain configurations were identified. The statistical techniques adopted had to take into account these categories. Discriminant analysis allows for the study of differences between two or more mutually exclusive groups with respect to several variables (Klecka, 1980).[99] It also provides information about the impact of variables when used in combination. This technique (used in conjunction with factor analysis that first enabled us to produce a set of reliable additive scales), therefore, permits us to consider the types and levels of market orientated behaviours and business performance associated with the different supply chain configurations identified.

We begin his section by examining the standardised coefficients for our first hypothesis:

$H_{0/1}$: 'There will be no significant difference between the level of business performance achieved by a firm and the supply chain configuration adopted'.

This tells us which business performance variables contribute most to the determining scores on each function. We then examine the structure coefficient, which tells us how closely a variable and function are related. The relative percentages calculated from Eigen values indicate how much power each function has. For the final substantive test we measure the residual discrimination with Wilks's Lambda which tells us how many functions should be derived from each analysis. Lambda is converted into Chi to give a significance reading. These readings must be interpreted with care because of the nature of the sample.[100] Whilst ordinarily one would expect an analyst to begin with an investigation of statistical significance, because of the

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[99] A full explanation of this technique is beyond the scope of this thesis. For an overview of the basic theory and practical considerations see Klecka (1980), Norusis (1988). For a more detailed analysis of the technique see Churchill (1991; pp975-995) or Hair *et al.* (1998; pp.178-255). For a discussion highlighting possible pitfalls of discriminant analysis usage see Eisenbeis, (1972).

[100] In order to calculate the significance level of the various functions the cases analysed must be taken from a simple random sample (Klecka, 1980). As this assumption can not be made about our sample, results from this part of the discriminant analysis must be interpreted with caution.

nature of our sample and thus our inability to rely on this specific result it was thought appropriate to combine an examination of the structure coefficients with group centroid positioning first. This enabled us to discover the meaning of each function and its contribution to discrimination without prejudging its significance on a sample that did not meet all the assumptions of discriminant analysis.[101]

Finally, to verify the substantive nature of variables we reverse the question, *'how do each of the supply chain configurations behave on the following variables?'* SPSS tells us, according to its own classification of cases, which of the six supply chain configuration types each case belongs to, according to that case's performance on the various variables. For example, if a firm scored highly on three business performance measures and two market orientation measures we would expect that firm to be integrated downstream.

There is insufficient evidence to enable us to reject the null hypothesis:

$H_{0/1}$: 'There will be no significant difference between the level of business performance achieved by a firm and the supply chain configuration adopted'.

This is likely to be due to the violation of some of the assumptions associated with the statistical technique of discriminant analysis. Despite this the results are promising enough to provide strong grounds for future investigation, under which all the assumptions associated with discriminant analysis can be met and the hypothesised relationship robustly tested. This conclusion has been reached based on the following results:

Standardised Coefficient. If we want to know the relative importance of financial, customer, innovation and learning and internal business performance perspectives[102] to the supply chain configuration adopted by a firm, we need to look at the standardised coefficients (Table 7.24). These are helpful in determining which variables contribute most to the determining scores on the function. By examining the

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[101] See Chapter 5, Section 5.2.12.4

[102] See Section 4.8.1 for a discussion on the Balanced Scorecard approach to measuring business performance (Kaplan & Norton, 1992).

magnitude of the standardised coefficients (ignoring the sign +/-), the greatest contributing variables may be identified. In Table 7.24 we can see that Total Sales Revenue, ROE, ROA, New Product Success, Brand Equity, Shareholder value and Total Profit make the greatest contribution; the other variables being of minor importance compared with these financial and innovation perspectives on business performance. For function 2, two of the three variables have relatively high-standardised coefficients, therefore each makes a somewhat similar contribution to the discriminant function on this dimension. The customer perspective provides the dominant variable for the third function with a customer retention score of 1.296.

Function 4 was largely dominated by the financial perspective variables but also included our measure of internal business performance; market-leader performance. Finally, function 5 included three of the most widely adopted financial business performance measures: ROA, ROE and Sales Growth.

Table 7.24 Standardised Canonical Discriminant Function Coefficients for the six supply chain configuration typologies discriminated against the business performance variables.

Variables	Function 1	Function 2	Function 3	Function 4	Function 5
ROA	**-1.070**	**0.618**	0.686	**0.679**	**-1.109**
ROE	**1.700**	0.030	**-1.018**	**-1.312**	**0.854**
New Product Success	**0.917**	-0.270	**-0.812**	**0.662**	-0.297
Sales Growth	-0.760	0.236	-0.084	0.313	**0.914**
Customer Retention	0.190	-0.137	**1.269**	-0.030	0.058
Brand Equity	**-0.837**	0.012	-0.188	-0.168	0.088
Customer Satisfaction	-0.225	0.347	-0.300	0.361	-0.201
Total Sales Revenue	**1.534**	0.276	0.542	**0.719**	0.144
Total Profit	**-0.615**	0.005	-0.456	**-0.780**	-0.180
Market-leader Performance	0.269	-0.127	0.305	**-0.725**	0.432
Shareholder Value	**-0.713**	**0.458**	0.196	**0.804**	-0.497

Structure Coefficients. To determine the similarity between a single variable and a discriminant function, we look at the product-moment correlation between the two. These correlations, (known as *'total structure coefficients'*) give the geometric structure of the data space. The structure coefficients are as calculated by SPSS and are detailed in Table 7.25.

Table 7.25 Structure Matrix for the six supply chain configuration typologies discriminated against the business performance variables.

Variables	Function 1	Function 2	Function 3	Function 4	Function 5
Shareholder Value	-0.037	**0.745***	0.087	0.282	0.002
ROE	0.194	**0.743***	0.027	-0.213	0.127
ROA	0.114	**0.736***	0.136	-0.172	-0.067
Market-Leader Performance	0.132	**0.658***	0.080	0.047	0.299
Customer Satisfaction	-0.006	0.432*	-0.252	0.254	-0.037
Total Profit	0.088	0.361*	-0.091	-0.069	-0.117
Total Sales Revenue	0.288	0.360*	0.086	0.056	-0.024
Brand Equity	0.023	0.330*	0.161	0.039	0.073
Customer Retention	0.166	0.223	**0.537***	0.267	0.225
New Product Success	0.300	0.224	-0.094	**0.565***	0.215
Sales Growth	-0.071	0.429	-0.018	0.317	**0.775***

Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions. Variables ordered by absolute size of correlation within function.

* Largest absolute correlation between each variable and any discriminant function

The structure coefficient tells us how closely a variable and a function are related. When the absolute magnitude of the coefficient is very large (+1.0 or-1.0), we know the function is carrying nearly the same information as the variable. When the coefficient is near zero, they have little in common. We labelled the function on the basis of the structure coefficients by noting the variables having the highest coefficients. Function 1 was labelled the financial perspective; function 2, the shareholder perspective; function 3, the customer perspective; function 4, the innovation perspective; function 5, growth.

Relative Percentage. By comparing the relative magnitudes of the Eigen values it is possible to see how much of the total discriminating power each function has. Thus 1.038 the first Eigen value, is more than nine times larger than the Eigen value for the fifth function (see Table 7.26) below. SPSS also converts the Eigen values into percentages. Thus we see that the first three functions together explain just over 86% of the total discriminating power. In other words, it is understanding a firm's level of financial, shareholder and customer performance that helps us more accurately predict their supply chain configuration. The value of this result is that it suggests that certain supply chain configurations are likely to lead to higher levels of performance on these three perspectives.

Table 7.26 Eigen Values and Measures of Importance for the six supply chain configuration typologies discriminated against the business performance variables.

Functions	Eigen Value	% of Variance	Cumulative %	Canonical Correlation
1 Financial perspective	1.038 [a]	34.9	34.9	**0.714**
2 Shareholder perspective	0.894 [a]	30.1	65.0	**0.687**
3 Customer perspective	0.634 [a]	21.4	**86.4**	**0.623**
4 Innovation perspective	0.291 [a]	9.8	96.2	0.475
5 Growth perspective	0114 [a]	3.8	100.0	0.320

a. All 5 canonical discriminant functions were used in this analysis.

A further method of judging the substantive utility of a discriminant function is by examining the canonical correlation coefficient.[103] Even though the first function in Table 7.26 is the most powerful in the relative sense, it may only be weakly related to the groups as measured by the canonical correlations. Canonical correlations are useful in reporting how well the discriminant function is doing. In this case it can be seen that all five functions have an impact but that the financial, shareholder and customer perspectives on performance are the strongest predictors of supply chain configuration.

Measuring Residual Discrimination with Wilks's Lambda. As the firms investigated within this research project represent a sample of the population and not the entire population of UK based firms, the question of statistical significance arises. It is only possible to answer this question when the sampling process has a probability basis (i.e. a simple random sample). As can be seen from the discussion in Chapter 5, no such assumption can be attributed to our sample, therefore, the reader is advised to interpret these test results conservatively and place greater emphasis upon the substantive importance of the results. Having said that, according to Klecka (1980), this should not prevent the use of such techniques for guiding the researcher towards identifying future research objectives.[104]

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[103] The coefficient is a measure of association, which summarises the degree of relatedness between the groups and the discriminant function. A value of zero denotes no relationship at all, while large numbers (always positive) represent increasing degrees of association with 1.0 being the maximum. The canonical correlation, which we can symbolise by r*, is related to the Eigen value by the following formula (where i denotes the relevant discriminant function): $r^* = \frac{\lambda_i}{\sqrt{1+\lambda_i}}$ (see Levine, 1977).

[104] Violation of the assumption of normality is only critical if tests of statistical significance involving population estimates are involved. While we may not know how much error has been introduced by violation of this assumption we can get an indication by looking at statistics that do not rely on the assumption. For example, we can use the canonical correlations instead of (or in support of) the Wilks's lambda. Klecka (1980, p2) concludes, if we are looking to approximate the real world, the best guide is the percentage of correct classification. If this percentage is high then the violation of the assumption is not particularly harmful.

By examining the residual discrimination (i.e. the ability of the variables to discriminate among the groups beyond the information that has been extracted by the previously computed functions) it is possible to see if it is meaningful to derive further functions. To this end we adopt Wilks' lambda. This is a multivariate measure of group differences over several discriminating variables. Although there are several ways to calculate this measure, the formula adopted in this context is as follows:

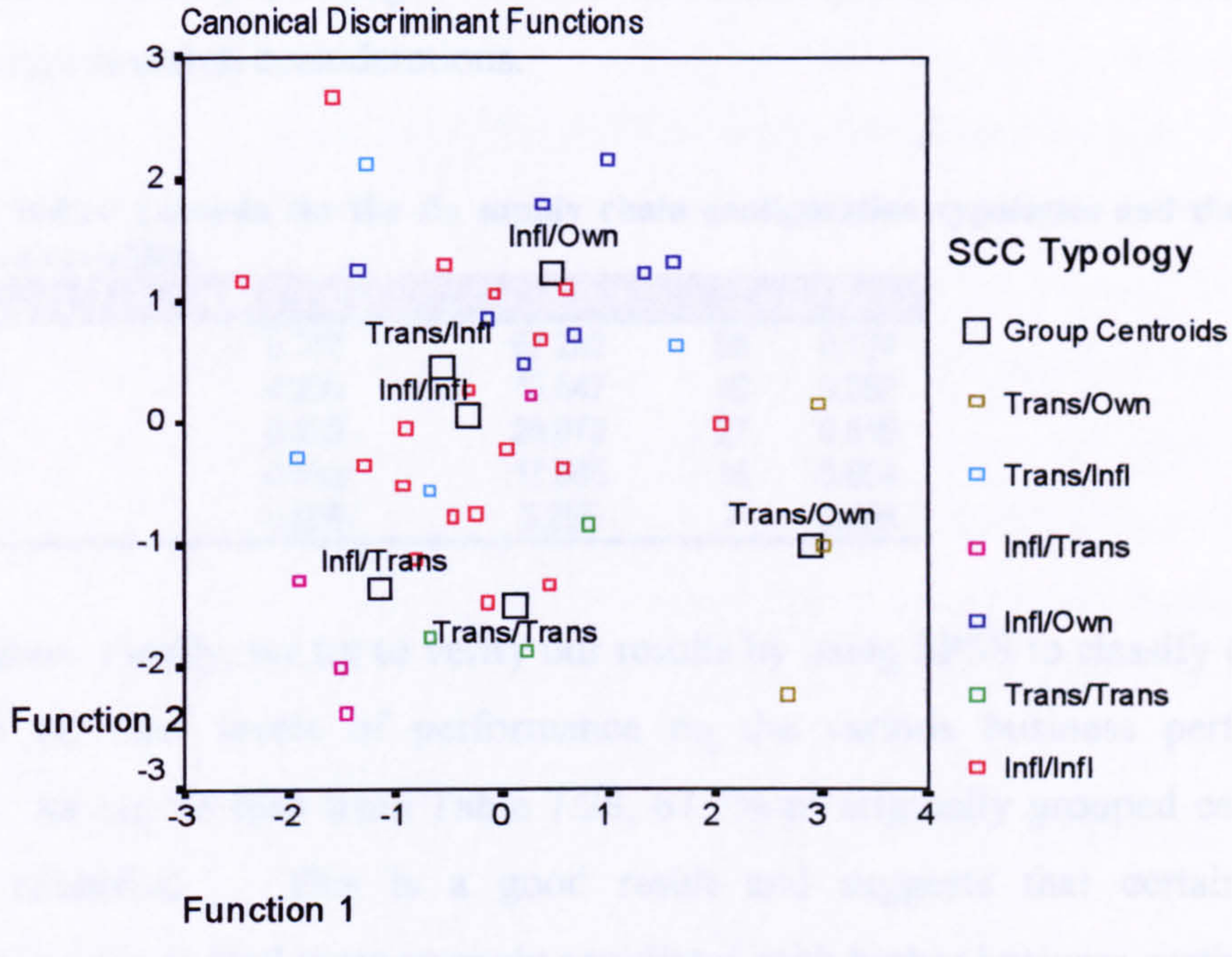
$$\Lambda = \prod_{i=k+1}^{q} \frac{1}{1+\lambda_i}$$

Where k denotes the number of functions already derived, $\prod$ the individual terms to be multiplied to yield the final product, and q the number of variables in the smaller set.

Values of lambda, which are near zero, denote high discrimination (i.e. the group centroids are greatly separated and very distinct relative to the amount of dispersion within the groups; see Figure 7.18). As lambda increases toward its maximum value 1.0 it is reporting progressively less discrimination. When lambda equals 1.0, the group centroids are identical (no group differences).

Figure 7.18 illustrates the group centroids for the six supply chain configurations identified. As can be seen from the positioning of these centroids, firms that integrate downstream are more closely clustered at the upper end of the canonical discriminant function, whereas firms that adopted transactional relationships downstream are closely clustered at the lower end of the function. This suggests that certain types of integration might be more appropriate for certain positions within the supply chain, i.e. that firms should integrate downstream through either influence in inter-firm relationships or ownership in order to leverage business performance (particularly from the financial, shareholder and customer perspectives).

Figure 7.18 Canonical discriminant functions illustrating the group centroids for the six supply chain configuration typologies and the business performance variables.



Note: Trans/Own = Transactional relationships upstream/ Ownership downstream
Trans/Infl = Transactional relationships upstream/ Influence downstream
Infl/Trans = Influence upstream/ Transactional relationships downstream
Infl/Own = Influence upstream/ Ownership downstream
Trans/Trans = Transactional relationships upstream/ Transactional relationships downstream
Infl/Infl = Influence upstream/ Influence downstream

As can be seen from Table 7.27, once the first (and most powerful) function has been derived, it removes a good deal of the discriminating information from the system. We now enquire whether enough residual discrimination remains to justify the derivation of a second function (and so on). Removing the second function depletes the discriminating information further so that lambda becomes 0.425. This value is not very high, indicating that the remaining information about group differences *is* worth pursuing. We saw similar indications when we examined the relative percentages and the canonical correlations. Therefore, we conclude that the remaining discriminant functions are important. This suggests that Kaplan & Norton's (1992) balanced scorecard approach is a valid business performance consideration.

Lambda can be converted into a test of significance through an approximation of chi-square or F distributions transformation. We adopt the chi-square approximation (Klecka, 1980). In this case none of the functions appear significant. This is perhaps

not surprising bearing in mind the sampling procedure adopted. However, the first three functions show promising results and in conjunction with our previous results, warrant future research considerations.

Table 7.27 Wilks' Lambda for the six supply chain configuration typologies and the business performance variables.

Test of Function(s)	Wilks' Lambda	Chi-square	df	Sig.
1 through 5	0.110	67.262	55	0.124
2 through 5	0.225	45.547	40	0.252
3 through 5	0.425	26.070	27	0.515
4 through 5	0.695	11.085	16	0.804
5	0.898	3.295	7	0.856

Classification. Finally, we try to verify our results by using SPSS to classify our cases dependent on their levels of performance on the various business performance variables. As can be seen from Table 7.28, 67.5% of originally grouped cases were correctly classified. This is a good result and suggests that certain supply configurations are indeed more strongly associated with higher business performance.

Table 7.28 Classification table for supply chain configurations and their association with business performance.

		Predicted Group Membership						Total
	SCC Typology	Infl/Infl	Trans/Trans	Infl/Own	Infl/Trans	Trans/Infl	Trans/Own/	
Original Count	Infl/Infl	8	2	1	2	4	1	18
	Trans/Trans	0	3	0	0	0	0	3
	Infl/Own	1	0	7	0	0	0	8
	Infl/Trans	0	0	1	3	0	0	4
	Trans/Infl	0	0	1	0	3	0	4
	Trans/Own	0	0	0	0	0	3	3
%	Infl/Infl	44.4	11.1	5.6	11.1	22.2	5.6	100
	Trans/Trans	0	100	0	0	0	0	100
	Infl/Own	12.5	0	87.5	0	0	0	100
	Infl/Trans	0	0	25	75	0	0	100
	Trans/Infl	0	0	25	0	75	0	100
	Trans/Own	0	0	0	0	0	100	100

a. 67.5% of original grouped cases correctly classified.

In summary, interpretation of these results suggests that firms need to integrate downstream, either through ownership or influence in order to leverage business performance. The business performance measures that are most strongly associated with downstream integration are financial, shareholder and customer performance. This in turn suggests that downstream integration is conducive to both a strong long-term and short-term business performance.

We then look to our second hypothesis. The evidence suggests that we can reject the null hypothesis:

$H_{0/2}$: There will be no significant difference between the supply chain configuration adopted and the level of market orientation achieved.

Table 7.29 illustrates the relative importance of customer orientation, competitor orientation and inter-functional co-ordination to supply chain configuration adopted. Three functions are identified by SPSS. For function 1 we see that customer orientation makes the greatest contribution to the determining score; the other variables being of minor importance (compared with customer orientation). For function 2, two of the three variables have relatively high standardised coefficients, therefore, each makes a somewhat similar contribution to the discriminant function on this dimension. Inter-functional co-ordination is the dominant variable on the third function.

The structure coefficients (Table 7.30) indicate similarity between customer orientation, competitor orientation and the discriminant function 1. We subsequently named function 1, External Orientation; function 2, Competitor Orientation; function 3, Inter-function Co-ordination.

The next step was to compare the relative magnitudes of the Eigen values in order to understand how much of the total discriminating power each function has. The first Eigen value (0.299) is more than four times larger than the Eigen value for the third function (Table 7.31). Therefore, the relative power of function 1 – the external orientation of a firm, is more likely to be a better predictor of the type of supply chain configuration adopted. Converted into percentages we see that the first two functions together explain just over 89% of the total discriminating power. In other words, it is whether firms are focused on external factors, i.e. oriented towards their customers and competitors that allow us to predict their supply chain configuration. Further, the canonical correlations illustrated in the same table, indicate that whilst all three functions have an impact on supply chain configuration it is customer orientation and competitor ordination that are the strongest predictors of supply chain configuration.

As can be seen from the residual discrimination analysis (Table 7.31), once the first function has been derived, a good deal of the discriminating information is removed from the system. Removing the second function depletes the discriminating information further so that lambda becomes 0.939. This value is very high, indicating that the remaining information about group differences may not be worth pursuing. In other words, customer orientation and competitor orientation are again identified as the best predictors of supply chain configuration. These results are reflected in the relative percentages and the canonical correlations. Therefore we conclude that the remaining discriminant function (function 3, inter-functional co-ordination) is relatively unimportant.

Lambda, converted to chi-square (Table 7.32) shows none of the functions to be significant. This is not surprising bearing in mind the sampling procedure adopted. However, the first two functions show promising results and do warrant future research considerations.

As can be seen from the centroid plots (Figure 7.19) it is once again the firms that are integrated downstream that are associated with the higher scores; the highest levels of customer and competitor orientation. More specifically, it is the firms that are integrated downstream through ownership that are associated with the highest scores. This suggests that the further downstream a firm is positioned within the supply chain, the more likely it is to be customer and competitor oriented. If the downstream supply chain stages are more strongly associated with high customer and competitor orientation and increased business performance, then the argument for firms that find themselves positioned upstream of the supply chain, seeking to integrate downstream either through ownership or influence is further strengthened.

Finally, we try to verify our results by using SPSS to classify our cases dependent on their levels of performance on the three market orientation variables. As can be seen from Table 7.33, only 40% of originally grouped cases were correctly classified. This, whilst not disastrous, is a disappointing result compared with that found for $H_{0/1}$. A number of explanations may be offered for this. Firstly, the primary measure of business performance success in $H_{0/1}$ was financial performance; this is a more objective measure than those associated with market orientation. Firms may have

reported their market orientation levels as being higher than they were. Secondly, the sample we used was not a simple random sample and thus we could not assume a normal distribution. This affects the probability of SPSS assigning the supply chain configuration group membership correctly. Despite this disappointment these results provide limited evidence to suggest that supply chain configurations that involve integration downstream, and more particularly ownership downstream, are associated with higher levels of customer and competitor orientation. Therefore, we reject the null hypothesis $H_{0/2}$.

Discriminant Analysis Results for $H_{0/2}$:

"There will be no significant difference between the supply chain configuration adopted and the level of market orientation achieved."

Table 7.29 Standardised Canonical Discriminant Function Coefficients for the six supply chain configuration typologies discriminated against the three market orientation dimensions.

Variables	*Function 1*	*Function 2*	*Function 3*
Customer Orientation	**0.981**	**-1.030**	-0.109
Competitor Orientation	-0.095	**1.505**	-0.593
Inter-functional Co-ordination	0.235	-0.164	**1.164**

Table 7.30 Structure Matrix for the six supply chain configuration typologies discriminated against the three market orientation dimensions.

Variables	*Function 1*	*Function 2*	*Function 3*
Customer Orientation	0.980*	-0.017	-0.201
Competitor Orientation	0.721*	0.692	-0.048
Inter-functional Co-ordination	0.459	0.351	0.816*

Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions. Variables ordered by absolute size of correlation within function.
* Largest absolute correlation between each variable and any discriminant function

Table 7.31 Eigen Values and Measures of Importance for the six supply chain configuration typologies discriminated against the three market orientation dimensions.

Functions	*Eigen Value*	*% of Variance*	*Cumulative %*	*Canonical Correlation*
1. External Orientation	0.299[a]	48.9	48.9	0.480
2. Competitor Orientation	0.248[a]	40.6	89.4	0.446
3. Inter-functional Co-ordination	0.065[a]	10.6	100.0	0.247

a. All 3 canonical discriminant functions were used in this analysis.

Table 7.32 Wilks' Lambda for the six supply chain configuration typologies and the three market orientation dimensions.

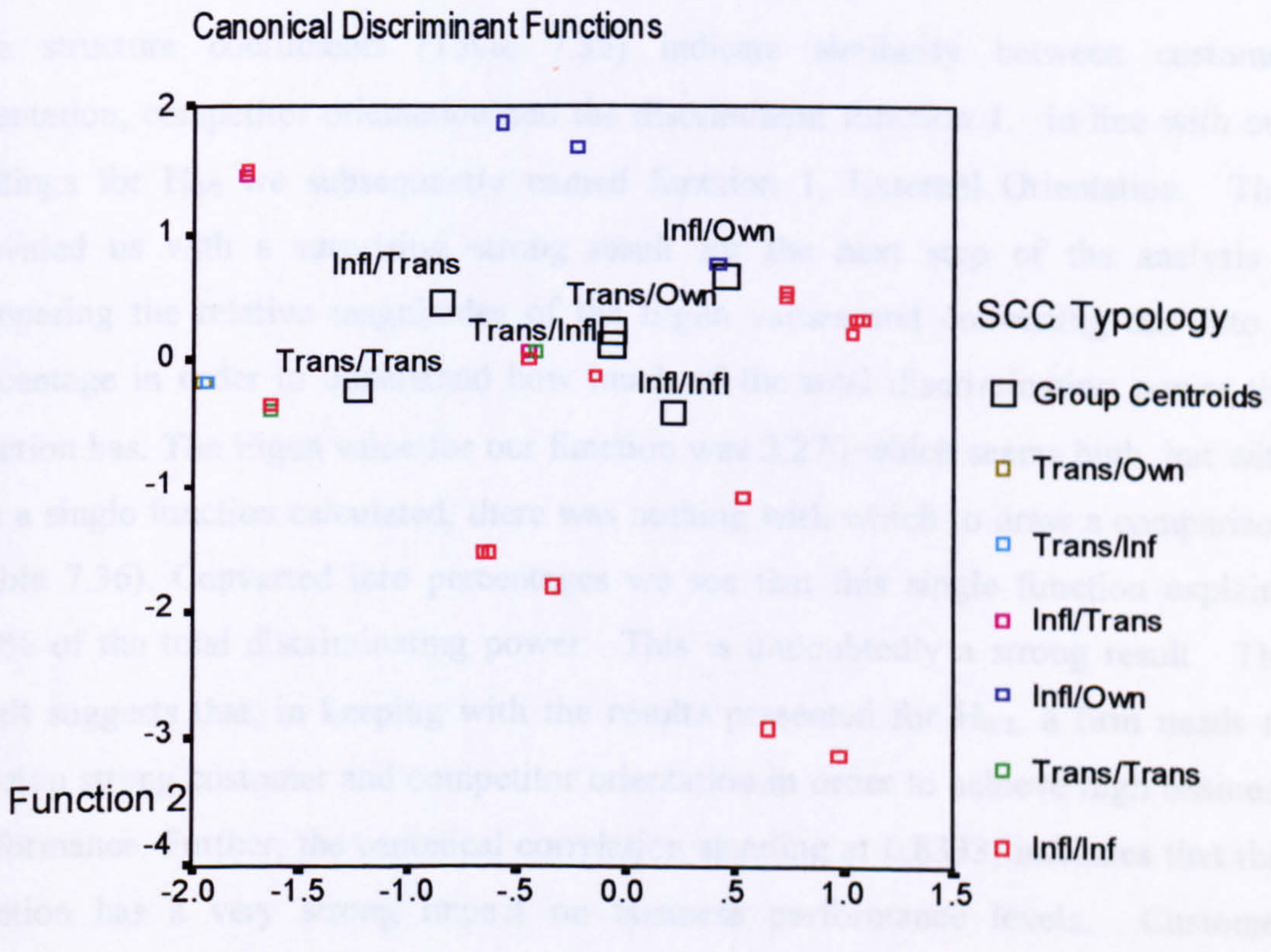
Test of Function(s)	*Wilks's Lambda*	*Chi-square*	*df*	*Sig.*
1 through 3	0.579	18.855	15	0.220
2 through 3	0.752	9.823	8	0.278
3	0.939	2.168	3	0.538

Table 7.33 Classification Results

		SCC Typology	Predicted Group Membership Infl/Infl	Trans/Trans	Infl/Own	Infl/Trans	Trans/Infl	Trans/Own	Total
Original	Count	Infl/Infl	6	1	5	1	2	3	18
		Trans/Trans	0	2	0	0	1	0	3
		Infl/Own	0	0	5	1	1	1	8
		Infl/Trans	0	1	0	1	1	1	4
		Trans/Infl	0	0	2	1	1	0	4
		Trans/Own	0	0	1	1	0	1	3
	%	Infl/Infl	33.3	5.6	27.8	5.6	11.1	16.7	100
		Trans/Trans	0	66.7	0	0	33.3	0	100
		Infl/Own	0	0	62.5	12.5	12.5	12.5	100
		Infl/Trans	0	25	0	25	25	25	100
		Trans/Infl	0	0	50	25	25	0	100
		Trans/Own	0	0	33.3	33.3	0.0	33.3	100

a 40.0% of original grouped cases correctly classified.

Figure 7.19 Canonical discriminant functions illustrating the group centroids for the six supply chain configuration typologies and the three market orientation dimensions.



Note.
Trans/Own = Transactional relationships upstream/ Ownership downstream
Trans/Infl = Transactional relationships upstream/ Influence downstream
Infl/Trans = Influence upstream/ Transactional relationships downstream
Infl/Own = Influence upstream/ Ownership downstream
Trans/Trans = Transactional relationships upstream/ Transactional relationships downstream
Infl/Infl = Influence upstream/ Influence downstream

We now consider our third hypothesis. The evidence suggests that we can reject the null hypothesis:

$H_{0/3}$: Business performance will not be significantly influenced by market orientation.

Table 7.34 illustrates the relative importance of customer orientation, competitor orientation and inter-functional co-ordination in determining the level of business performance achieved. In this analysis the forty cases were divided into two groups and labelled either high performers or low performers.[105] A single function was identified by SPSS. For this single function we see that competitor orientation makes the greatest contribution to the determining score. Customer orientation also makes a significant contribution to the function but the third variable (inter-functional co-ordination) is of minor importance.

The structure coefficients (Table 7.35) indicate similarity between customer orientation, competitor orientation and the discriminant function 1. In line with our findings for $H_{0/2}$ we subsequently named function 1, External Orientation. This provided us with a surprising strong result for the next step of the analysis - comparing the relative magnitudes of the Eigen values and converting this into a percentage in order to understand how much of the total discriminating power the function has. The Eigen value for our function was 2.270 which seems high, but with just a single function calculated, there was nothing with which to draw a comparison (Table 7.36). Converted into percentages we see that this single function explains 100% of the total discriminating power. This is undoubtedly a strong result. The result suggests that, in keeping with the results presented for $H_{0/2}$, a firm needs to develop strong customer and competitor orientation in order to achieve high business performance. Further, the canonical correlation standing at 0.8333, indicates that this function has a very strong impact on business performance levels. Customer orientation and competitor orientation *are* strong predictors of business performance. This goes somewhat further than most research into the relationship between market orientation and business performance as it suggests that two of the three dimensions

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[105] See explanation of case selection procedure, Chapter 5, Section 5.2.6

of market orientation are much more significant to the inter-relationship between the two variables.

For the first time within our discriminant analysis and despite the violations regarding sampling assumption discussed above, we have a statistically significant result. This is in itself is surprising and a very strong result. Lambda, converted to chi-square (Table 7.37) shows function 1 to be statistically significant at 0.000. Further the bar charts for each group (Figures 7.20a and 7.20b) show clearly the high scores on this function for the high business performance group and lower scores for the low business performance group. These bar charts are almost a mirror image of each other.

Finally, we verify our results by using SPSS to classify our cases dependent on their levels of performance on the three market orientation variables. As can be seen from Table 7.38, 90% of originally grouped cases were correctly classified. This again is a strong result. We might have expected the relationship between market orientation and business performance to be stronger than those explored between supply chain configuration and business performance levels ($H_{0/1}$) or market orientation and supply chain configuration ($H_{0/2}$) because $H_{0/3}$ is such a widely tested and verified relationship. Our other two hypothesised relationships are not. Ultimately, there is evidence to suggest that firms who are able to develop and maintain high levels of customer and competitor orientation will benefit from increased business performance. Therefore, we reject the null hypothesis $H_{0/3}$.

Where this result differs from other market orientation-business performance research is the linking of two dimensions of market orientation with higher business performance. The only other research to acknowledge differing types of market orientation behaviour and link it to business performance is Greenley (1995b), Siguaw, Simpson & Baker (1998) and Schlegelmilch & Ram (2000). All other research in this area treats market orientation as a single variable (usually built through additive scales) and does not examine the levels of performance on each of the market orientation dimensions (e.g. Narver & Slater, 1990; Pitt, Cruana & Berthon, 1996).

Discriminant Analysis Results for $H_{0/3}$:

"Business performance will not be significantly influenced by market orientation."

Table 7.34 Standardised Canonical Discriminant Function Coefficients for the six supply chain configuration typologies discriminated against the three market orientation dimensions.

Variables	*Function 1*
Customer Orientation	0.526
Competitor Orientation	0.624
Inter-functional Co-ordination	0.223

Table 7.35 Structure Matrix for the six supply chain configuration typologies discriminated against the three market orientation dimensions.

Variables	*Function 1*
Customer Orientation	**0.862**
Competitor Orientation	**0.710**
Inter-functional Co-ordination	0.392

Pooled within-groups correlations between discriminating variables and standardized canonical discriminant functions. Variables ordered by absolute size of correlation within function.

Table 7.36 Eigen Values and Measures of Importance for the six supply chain configuration typologies discriminated against the three market orientation dimensions.

Functions	*Eigen Value*	*% of Variance*	*Cumulative %*	*Canonical Correlation*
External Orientation	2.270[a]	100	100	0.833

a. the first canonical discriminant function was used in the analysis.

Table 7.37 Wilks' Lambda for the six supply chain configuration typologies and the three market orientation dimensions.

Test of Function(s)	*Wilks' Lambda*	*Chi-square*	*df*	*Sig.*
1 External Orientation	0.306	43.247	3	0.000

Table 7.38 Classification Results

			Predicted Group Membership		
		Business Performance	*High*	*Low*	*Total*
Original	Count	High performers	18	2	20
		Low performers	2	18	20
	%	High performers	90.0	10.0	100
		Low performers	10.0	90.0	100

a 90.0% of original grouped cases correctly classified.

Figure 7.20 Canonical discriminant function illustrating the two business performance classifications and the three market orientation dimensions.

Figure 7.20a For Group 1: High performance Firms only

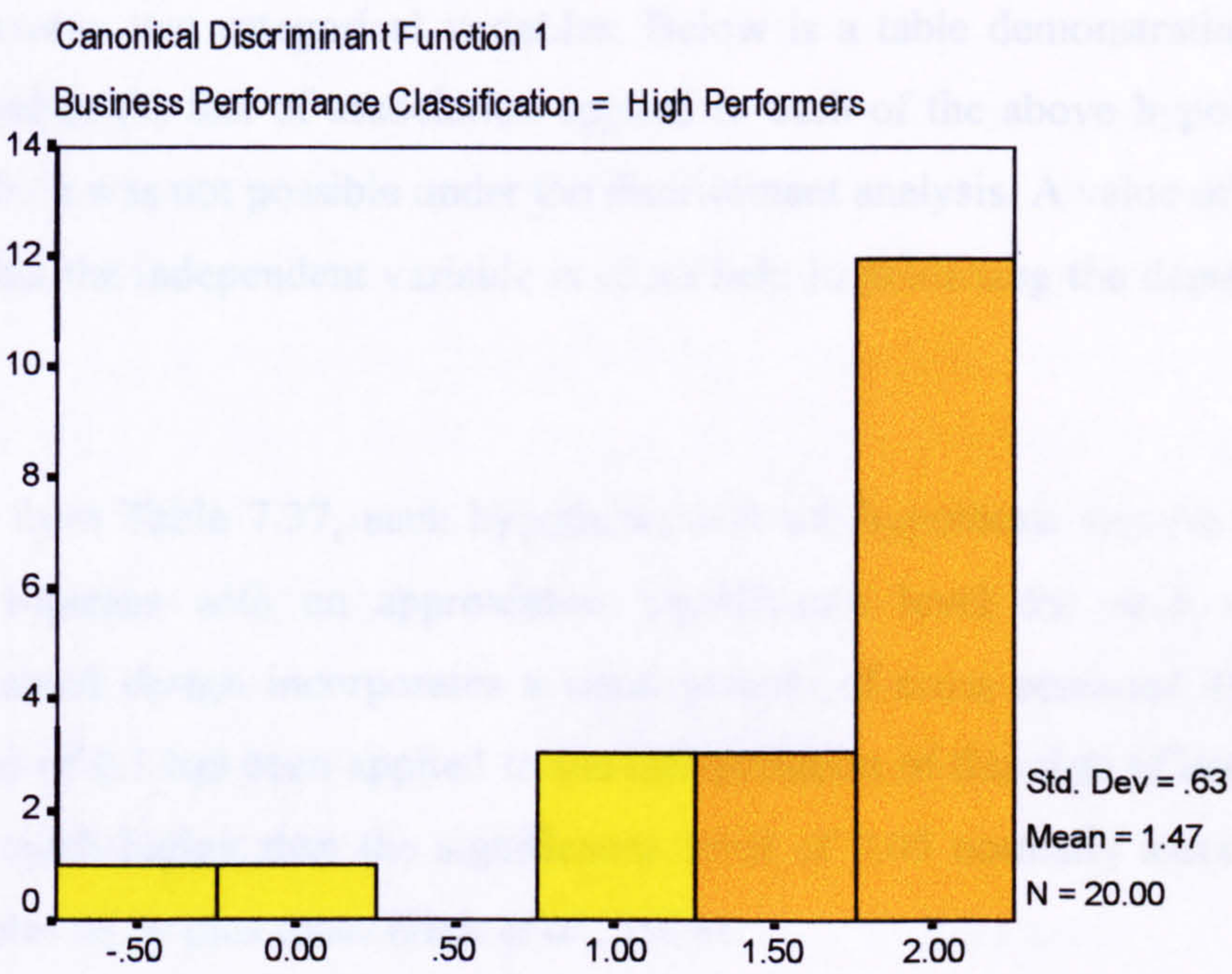
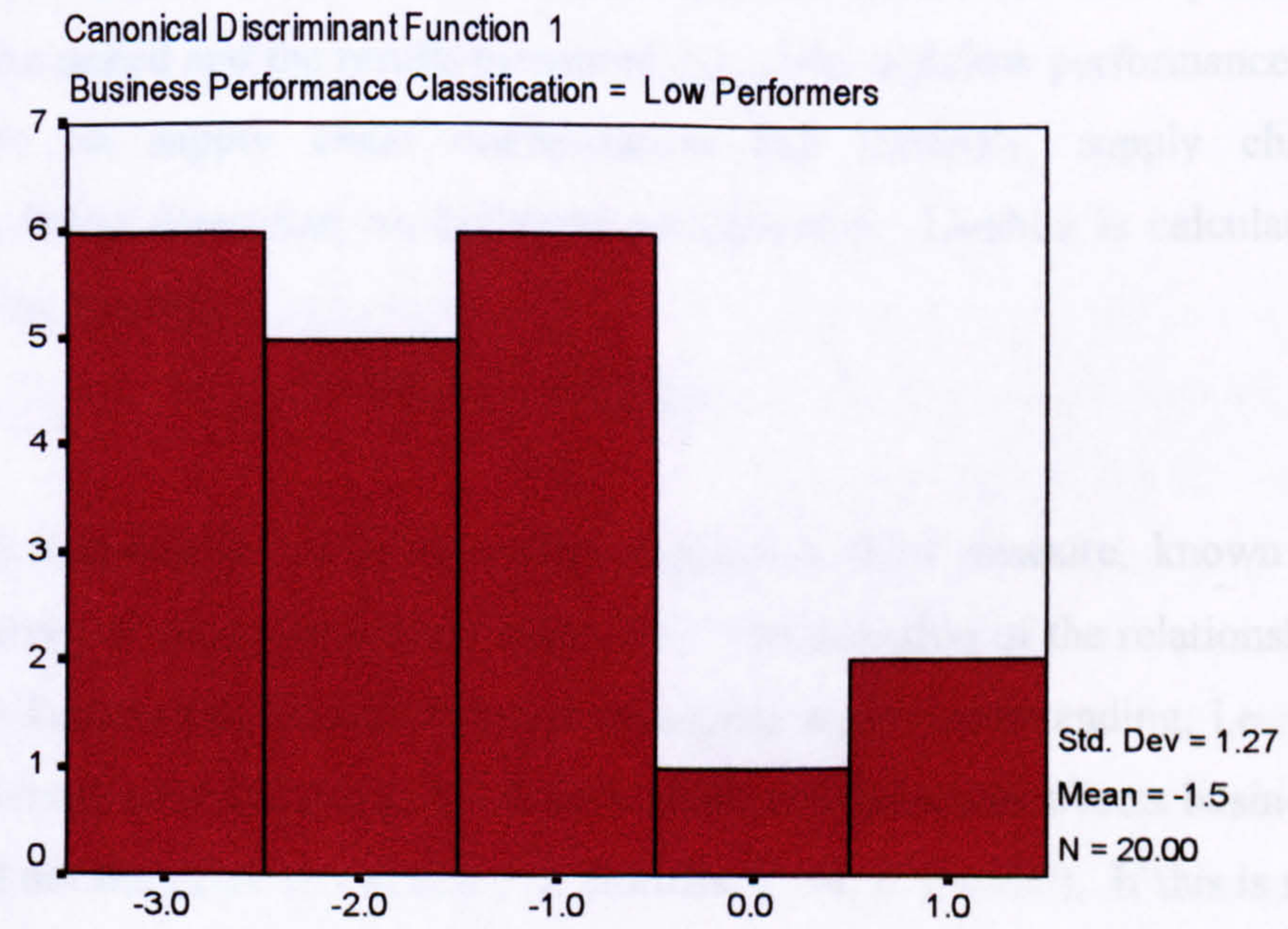


Figure 7.20b For Group 2: Low performance Firms only.



7.6.2 Measures of Association

Measuring association methods enable us to explore the strength and nature of the relationships between two categorical variables. Below is a table demonstrating the results of the lambda (λ) test of association applied to each of the above hypothesis (Section 7.6), which was not possible under the discriminant analysis. A value of 0 for lambda means that the independent variable is of no help in predicting the dependent variable.

As can be seen from Table 7.37, each hypothesis and sub-hypothesis records three lambda values together with an approximate significance level for each value. Because the research design incorporates a small sample of cross sectional data, a significance level of 0.1 has been applied to the interpretation of this data (Churchill, 1995). This is much higher than the significance level of 0.05 normally associated with larger samples of 50 plus cases (Hair *et al.*, 1998).

Each lambda value enables us to better understand the direction and the strength of the posed relationship. Lambda is not a symmetric measure. Its value depends on which variable you predict from which. Therefore, the results for each possible relationship are modelled and the results presented, e.g. first, high/low performance as being dependent on supply chain configuration and secondly, supply chain configuration as being dependent on high/low performance. Lambda is calculated using the following formula:

$$\lambda = \frac{P(1) - P(2)}{P(1)}$$

Having said that Lambda is not a symmetric measure a third measure, known as '*Symmetric Lambda*' is also presented in Table 7.37. The direction of the relationship modelled for the lambda test should be based on a theoretical understanding, i.e. we must have some reason for believing that supply chain configuration affects business performance and not the other way round (*c.f.* Norušis, 1998, p334-359). If this is not the case and we have no reason to consider one of the variables dependent and the other independent, one should compute the symmetric lambda coefficient. This predicts the first variable for the second and then the second for the first.

Table 7.39 demands one last comment before we look at the results. As no single measure was developed for business performance we have examined individual items under headings identified through each of the four balanced scorecard perspectives (Section 6.5.4.).

Whilst care should be taken to the weight given to this section of the analysis (as our sample size dictates that we are unable to assume a normal distribution), we have some promising results. Based on the lambda test results we are able to reject the null hypotheses $H_{0/1}$, $H_{0/2}$ and $H_{0/3}$. We have some empirical evidence that warrants further investigation into the alternative hypotheses:

$H_{1/1}$: There is a significant difference between high and low performance firms in the supply chain configuration adopted.

$H_{2/2}$: There is a significant difference between the supply chain configuration adopted and the level of market orientation.

$H_{3/3}$: Business performance will be significantly influenced by market orientation.

The results for $H_{0/1}$ suggest that the supply chain configuration adopted does have an impact of a firm's business performance. Further, the sub-hypotheses reveal that relationship type is connected to positioning within the supply chain. It is downstream integration (whether that be through ownership or inter-firm relationships) that has the greatest impact on business performance.

The results for $H_{0/2}$ suggest that the supply chain configuration adopted has an impact of the level of market orientation achieved. The sub-hypotheses suggest that whilst there is a relationship between all three market orientation dimensions the strongest relationship (0.26) exists between the supply chain configuration adopted and the level of inter-functional co-ordination. The results suggest that market orientation is dependent on the supply chain configuration adopted. In other words, certain types of supply chain configuration are more conducive to achieving a high market orientation. Table 7.40 presents the mean values for each of the market orientation and business performance variables categorised by supply chain configuration. As can be seen from the table, the supply chain configuration that demonstrates the highest levels of market orientation is configuration number 3, with influence upstream and ownership

downstream. Eight of our firms adopted this supply chain configuration making it the second most widely adopted supply chain configuration found through our research.

The results for $H_{0/3}$ suggest that the level of market orientation achieved has a positive relationship with the level of business performance achieved, presenting a lambda value of 0.435. The sub-hypotheses examine business performance through each of the three market orientation dimensions. The high/low performer divide provided high lambda values suggesting a strong positive relationship between customer orientation (0.75), competitor orientation (0.8), and inter-functional co-ordination (0.65). Finally, the four balanced scorecard perspectives cross each market orientation dimensions.

The Financial Perspective. All 8 financial criteria demonstrate some degree of positive relationship with the market orientation dimensions; however, not all demonstrated sufficient significance levels. The strongest positive relationships with customer orientation modelled as the independent variable, were shareholder value 0.386), brand equity (0.3) and ROE (0.25). The strongest positive relationships found when competitor orientation was modelled as the independent variable, were for the same items when customer orientation was modelled as the independent variable; shareholder value (0.423), ROE (0.25), brand equity (0.233). With inter-functional co-ordination as the independent variable the results were slightly different, though the strongest relationship was again found with shareholder value (0.308), ROE (0.357) and sales growth (0.25).

The Customer Perspective. Both of the customer criteria (customer retention and customer satisfaction) demonstrated some degree of positive relationship with market orientation. Unfortunately customer satisfaction did not achieve the required significance level on any of the market orientation dimensions. The majority of relationships in this section achieved a lambda value of around 0.2, which is evidence of a moderate to weak relationship between the market orientation dimensions and the customer perspective items. The strongest positive relationship was between competitor orientation and customer satisfaction (0.316). This is an interesting finding as it suggests that the more competitor orientated a firm is, the more satisfied their customers are. It would be interesting to find out why, whether it was price or

service offerings that came out of such an orientation that most pleased customers (*c.f.* Porter, 1980).

The Innovation & Learning Perspective. A single item (new product success) were compared with customer orientation, competitor orientation, and inter-functional co-ordination to explore the relationship between the innovation and learning perspective and market orientation. Again, the lambda score in each case was around 0.2. The strongest relationship arose where customer orientation was modelled as the independent variable and the lambda value was 0.296.

The Internal Business Performance Perspective. Market-leader performances was compared with each of the market orientation dimensions to provide a measure of internal business performance. Significance levels were not achieved for any of the market orientation dimensions modelled as independent variables. The lambda scores were all just above 0.1 showing a weak relationship and suggesting that internal business performance might not have a high impact on market orientation. This is a disappointing finding, but, as the significance levels suggest, may be due to a research design limitation.

7.7 Summary

This chapter examined the influence construct through an exploratory factor analysis. As such it has identified eleven factors that comprise the construct. These factors have been considered in the wider context of supply chain configuration for their relationships with both market orientation and four different business performance perspectives. The three statistical techniques applied to the data (descriptive analysis, discriminant analysis and lambda), all suggest a positive association between the supply chain configuration adopted and business performance, supply chain configuration and market orientation and the level of market orientation and business performance. Ultimately the data suggests that downstream integration is strongly associated with higher levels of both market orientation and business performance than de-integration downstream. Equally, upstream de-integration does not appear to have a negative effect on either market orientation or business performance.

Table 7.39 The Lambda values for the Three key hypotheses and sub-hypotheses.

H_0	Cross-tabulation	Lambda	Value	Approx. Sig
$H_{0/1}$	High/Low Performer * Supply Chain Configuration Type	Symmetric	0.143	0.047
		High/Low Performance Dependent	0.3	0.047
		Supply Chain Configuration Type Dependent	0	.[a]
$H_{0/1a}$	High/Low Performer * Integration Type Upstream	Symmetric	0.133	0.197
		High/Low Performance Dependent	0.2	0.197
		Vertical Integration Type Upstream Dependent	0	.[a]
$H_{0/1b}$	High/Low Performer * Integration Type Downstream	Symmetric	0.132	0.048
		High/Low Performance Dependent	0.25	0.048
		Vertical Integration Type Downstream Dependent	0	.[a]
$H_{0/2}$	Supply Chain Configuration * Market Orientation	Symmetric	0.111	0.017
		Supply Chain Configuration Typology Dependent	0	.[a]
		Market Orientation Dependent	0.217	0.017
$H_{0/2a}$	Supply Chain Configuration * Customer Orientation	Symmetric	0.73	0.17
		Supply Chain Configuration Typology Dependent	0	.[a]
		Customer Orientation Dependent	0.158	0.17
$H_{0/2b}$	Supply Chain Configuration * Competitor Orientation	Symmetric	0.071	0.17
		Supply Chain Configuration Typology Dependent	0	.[a]
		Competitor Orientation Dependent	0.15	0.17
$H_{0/2c}$	Supply Chain Configuration * Inter-functional Co-ordination	Symmetric	0.133	0.072
		Supply Chain Configuration Typology Dependent	0	.[a]
		Inter-Functional Co-Ordination Dependent	0.261	0.072
$H_{0/3}$	Business Performance * Market Orientation	Symmetric	0.581	0
		Business Performance Dependent	0.435	0
		Market Orientation Dependent	0.75	0
$H_{0/3a}$	Business Performance * Customer Orientation	Symmetric	0.538	.001
		Business Performance Dependent	0.750	.000
		Customer Orientation Dependent	0.316	.000
$H_{0/3b}$	Business Performance * Competitor Orientation	Symmetric	0.625	.000
		Business Performance Dependent	0.800	.000
		Competitor Orientation Dependent	0.450	.007
$H_{0/3c}$	Business Performance * Inter-functional Co-ordination	Symmetric	0.558	.000
		Business Performance Dependent	0.650	0.004
		Inter-Functional Co-Ordination Dependent	0.478	0.003
$H_{0/3d}$	Financial Performance * Customer Orientation ROA *	Symmetric	0.149	0.184
		ROA Dependent	0.143	0.147
		Customer Orientation Dependent	0.158	0.311

[a] cannot be computed because the asymptotic standard error equals zero
[b] based on normal approximation

Table 7.39 cont. The Lambda values for the Three key hypotheses and sub-hypotheses.

H_0	Cross-tabulation	Lambda	Value	Approx. Sig
	ROE *	Symmetric	0.234	0.149
		ROE Dependent	0.25	0.115
		Customer Orientation Dependent	0.211	0.34
	Sales Growth *	Symmetric	0.255	0.02
		Sales Growth Dependent	0.214	0.047
		Customer Orientation Dependent	0.316	0.047
	Brand Equity *	Symmetric	0.265	0.095
		Brand Equity Dependent	0.3	0.02
		Customer Orientation Dependent	0.211	0.462
	Market Share *	Symmetric	0.296	0.007
		Market Share Dependent	0.114	0.278
		Customer Orientation Dependent	0.632	0.001
	Total Sales Revenue *	Symmetric	0.128	0.364
		Total Sales Revenue Dependent	0.15	0.17
		Customer Orientation Dependent	0.105	0.636
	Total Profit Revenue *	Symmetric	0.136	0.297
		Total Profit Revenue Dependent	0.2	0.048
		Customer Orientation Dependent	0.053	0.796
	Shareholder value	Symmetric	0.422	0
		Shareholder Value Dependent	0.385	0.003
		Customer Orientation Dependent	0.474	0.012
$H_{0/3e}$	Financial Performance * Competitor Orientation			
	ROA *	Symmetric	0.167	0.197
		ROA Dependent	0.143	0.366
		Competitor Orientation Dependent	0.2	0.147
	ROE *	Symmetric	0.25	0.078
		ROE Dependent	0.25	0.134
		Competitor Orientation Dependent	0.25	0.187
	Sales Growth *	Symmetric	0.167	0.119
		Sales Growth Dependent	0.143	0.197
		Competitor Orientation Dependent	0.2	0.197
	Market Share *	Symmetric	0.255	0.009
		Market Share Dependent	0.086	0.249
		Competitor Orientation Dependent	0.55	0.003
	Brand Equity *	Symmetric	0.22	0.112
		Brand Equity Dependent	0.233	0.078
		Competitor Orientation Dependent	0.2	0.34
	Total Sales Revenue *	Symmetric	0.025	0.808
		Total Sales Revenue Dependent	0	.[b]
		Competitor Orientation Dependent	0.05	0.808
	Total Profit Revenue *	Symmetric	0.111	0.364
		Total Profit Revenue Dependent	0.12	0.249
		Competitor Orientation Dependent	0.1	0.592
	Shareholder Value*	Symmetric	0.435	0
		Shareholder Value Dependent	0.423	0.001
		Competitor Orientation Dependent	0.45	0.007

.[a] cannot be computed because the asymptotic standard error equals zero

.[b] based on normal approximation

Table 7.39 cont. The lambda values for the Three key hypotheses and sub-hypotheses.

H_0	Cross-tabulation	Lambda	Value	Approx. Sig
$H_{0/3f}$	Financial Performance * Inter-functional Co-ordination			
	ROA *	Symmetric	0.255	0.047
		ROA Dependent	0.179	0.268
		Inter-Functional Co-ordination Dependent	0.348	0.023
	ROE *	Symmetric	0.373	0.16
		ROE Dependent	0.357	0.24
		Inter-Functional Co-ordination Dependent	0.391	0.39
	Sales Growth *	Symmetric	0.373	0.002
		Sales Growth Dependent	0.25	0.059
		Inter-Functional Co-ordination Dependent	0.522	0.005
	Brand Equity *	Symmetric	0.245	0.032
		Brand Equity Dependent	0.167	0.187
		Inter-Functional Co-Ordination Dependent	0.348	0.023
	Market Share *	Symmetric	0.293	0.001
		Market Share Dependent	0.086	0.249
		Inter-Functional Co-ordination Dependent	0.609	0
	Total Sales Revenue *	Symmetric	0.186	0.16
		Total Sales Revenue Dependent	0.1	0.525
		Inter-Functional Co-ordination Dependent	0.261	0.123
	Total Profit Revenue *	Symmetric	0.146	0.255
		Total Profit Revenue Dependent	0.16	0.24
		Inter-Functional Co-ordination Dependent	0.13	0.489
	Shareholder Value*	Symmetric	0.388	0.002
		Shareholder Value Dependent	0.308	0.006
		Inter-Functional Co-ordination Dependent	0.478	0.006
$H_{0/3g}$	Customer Performance * Customer Orientation			
	Customer Retention *	Symmetric	0.286	0.018
		Customer Retention Dependent	0.233	0.025
		Customer Orientation Dependent	0.368	0.025
	Customer Satisfaction *	Symmetric	0.211	0.24
		Customer Satisfaction Dependent	0.158	0.435
		Customer Orientation Dependent	0.263	0.187
$H_{0/3h}$	Customer Performance * Competitor Orientation			
	Customer Retention *	Symmetric	0.18	0.072
		Customer Retention Dependent	0.167	0.084
		Competitor Orientation Dependent	0.2	0.197
	Customer Satisfaction*	Symmetric	0.308	0.047
		Customer Satisfaction Dependent	0.316	0.123
		Competitor Orientation Dependent	0.3	0.072

[a] cannot be computed because the asymptotic standard error equals zero
[b] based on normal approximation

Table 7.39 cont. The lambda values for the Three key hypotheses and sub-hypotheses.

H_0	Cross-tabulation	Lambda	Value	Approx. Sig
$H_{0/3i}$	Customer Performance * Inter-functional Co-ordination			
	Customer Retention *	Symmetric	0.208	0.025
		Customer Retention Dependent	0.133	0.197
		Inter-functional Co-ordination Dependent	0.304	0.059
	Customer Satisfaction *	Symmetric	0.167	0.311
		Customer Satisfaction Dependent	0.053	0.796
		Inter-functional Co-ordination Dependent	0.261	0.17
$H_{0/3j}$	Innovation & Learning * Customer Orientation			
	New Product Success *	Symmetric	0.261	0.015
		New Product Success Dependent	0.296	0.013
		Customer Orientation Dependent	0.211	0.24
$H_{0/3k}$	Innovation & Learning * Competitor Orientation			
	New Product Success *	Symmetric	0.277	0.001
		New Product Success Dependent	0.259	0.012
		Competitor Orientation Dependent	0.3	0.024
$H_{0/3l}$	Innovation & Learning * Inter-functional Co-ordination			
	New Product Success *	Symmetric	0.3	0.003
		New Product Success Dependent	0.222	0.024
		Inter-functional Co-ordination Dependent	0.391	0.001
$H_{0/3m}$	Internal Performance * Customer Orientation			
	Market-leader Performance*	Symmetric	0.234	0.052
		Market-Leader Dependent	0.179	0.243
		Customer Orientation Dependent	0.316	0.024
$H_{0/3n}$	Internal Performance * Competitor Orientation			
	Market-leader Performance*	Symmetric	0.167	0.219
		Market-Leader Dependent	0.143	0.366
		Competitor Orientation Dependent	0.2	0.311
$H_{0/3o}$	Internal Performance * Inter-functional Co-ordination			
	Market-leader Performance*	Symmetric	0.314	0.041
		Market-Leader Dependent	0.179	0.243
		Inter-functional Co-ordination Dependent	0.478	0.019

[a] cannot be computed because the asymptotic standard error equals zero

[b] based on normal approximation

ble 7.40 The mean values for market orientation and business performance variables, classified by supply chain configuration.

Supply Chain Configurations	1 mean	2 mean	3 mean	4 mean	5 mean	6 mean
RKET ORIENTATION						
stomer Orientation	2.50	1.33	2.63	1.75	2.25	2.33
Competitor Orientation	2.11	1.33	2.88	2.00	2.25	2.33
Inter-functional Co-ordination	2.11	2.00	2.63	1.75	2.25	2.00
Business Performance (high/low)	9 x high, 9 x low	3 x low	7 x high, 1 x low	1 x high, 3 x low	2 x high, 2 x low	1 x high, 2 x low
FINANCIAL PERSPECTIVE						
ROA	2.44	1.33	3.25	1.00	3.00	2.00
ROE	2.39	1.33	3.38	1.25	3.00	2.33
Sales Growth	3.06	1.00	3.50	2.75	2.75	2.33
Brand Equity	3.17	2.00	3.38	2.00	3.25	2.67
% of Market Share	29%	7%	13%	27%	26%	17%
Total Sales Revenue	3.56	2.67	4.38	2.00	3.50	4.33
Total Profit Revenue	2.83	2.33	4.00	2.00	3.25	2.67
Shareholder Value	3.67	2.33	4.25	2.50	3.50	2.67
CUSTOMER PERSPECTIVE						
Customer Retention	3.56	2.00	2.88	1.75	3.00	3.67
Customer Satisfaction	3.44	3.00	4.13	3.25	3.25	3.00
INNOVATION & LEARNING PERSPECTIVE						
New Product Success	2.72	2.00	3.25	2.25	1.75	3.33
INTERNAL BUSINESS PERSPECTIVE						
Market Leader Performance	3.28	1.67	4.13	2.00	3.50	3.00

Supply Chain Configuration Key:

1 = Influence upstream & Influence downstream
2 = Transactional upstream, Transactional downstream
3 = Influence upstream, Ownership downstream
4 = Influence upstream, Transactional downstream
5 = Transactional upstream, Influence downstream
6 = Transactional upstream, Ownership downstream

CHAPTER 8

Conclusions: Theoretical and Empirical Findings

Introduction

There is a vast quantity of literature devoted to outlining the increasing importance of *supply chain configuration*. However, there is a lack of empirical research into how supply chain configuration might be defined from an holistic viewpoint, taking the concept of vertical integration beyond ownership and into the relationship paradigm. Moreover, little is known about how supply chain configuration relates to marketing. This concluding chapter reviews the key contributions of this thesis in terms of these two gaps. As such, it begins by describing the key theoretical contribution to the study. Managerial implications for the research findings are then discussed. Finally, limitations of the study and avenues for future research are described.

This study broadly supports the findings of Cairncross (2002), suggesting that information technology, and more particularly the Internet, is shifting the main focus of the firm from efficiency towards effectiveness. In future competitive advantage will be achieved by the firms that better understand their customers; emphasising the importance of customer relationships and knowledge management.

8.1 Theoretical Contribution

The main contribution of this research is to the vertical integration, relationship marketing and market orientation literature. The research has defined supply chain configuration through the merging of the two principle approaches to vertical integration: 1) ownership and 2) inter-firm relationships. Inter-firm relationships have been shown to be an important dimension of supply chain configuration through their ability to create *influence* over supply chain members without the need to incur the asset risks traditionally associated with ownership. This research has developed a scale for *influence* and applied the scale to a small sample of high and low performance businesses. The study also enhances the understanding of certain

determinants and outcomes of six different supply chain configurations. More specifically, the research makes three contributions: 1) re-defines vertical integration through the supply chain configuration concept, 2) develops the influence scale, and 3) explores the relationship between market orientation, supply chain configuration and business performance. The following sections discuss these theoretical contributions.

8.1.1 Types of Integration

In the introduction (see Chapter 1), three research questions were posed, the first of which was, *"What types of integration exist within the supply chain?"* To address this question, two research objectives were developed: 1) to derive a conceptualisation of supply chain configuration that unites five areas of study in the supply chain and strategy literature and 2) to operationalise and empirically test the integration typologies identified. The question and research objectives were discussed in Chapters 3 and 4, which considered the supply, chain configuration domain and in Chapters 6 and 7 where the research findings were presented.

This research sought to redefine and rekindle study into the area of supply chain integration. The three methods of integration identified were: 1) ownership, 2) inter-firm relationships generating *influence* and 3) transactional relationships. Whilst the vertical integration, transaction cost and the strategy literature have discussed at length and empirically tested the existence and impact of both ownership and transactional relationships, the resource-based-view and the relationship marketing literature discusses only disparate aspects of inter-firm relationships and their benefits. It offers no synthesised empirical evidence of inter-firm relationships modelled as a single construct. This investigation contributes to the literature by developing and testing a scale that specifies the sub-dimensions of *influence* within inter-firm relationships. The research attempts to theorise and provide empirical support for the construct of supply chain configuration (and more specifically *influence* as an important dimension of this construct). It provides a preliminary attempt at developing a comprehensive understanding of *influence* developed through inter-firm relationships as an integral part of supply chain configuration construct, previously defined purely in terms of financial ownership (Harrigan, 1984, 1985a).

The development of an interdisciplinary foundation for the supply chain configuration domain is a major contribution to this area of study. Indeed, by bringing together different schools of thought to conceptualise supply chain configuration, this research contributes to the interdisciplinary approach advocated in recent vertical integration and marketing literature (e.g. Mahoney, 1992; Webster, 1992; Langabeer & Rose 2001). It therefore provides an holistic perspective of supply chain configuration.

The research first concentrated on the dimensions of supply chain configuration. It introduced and operationalised the concept of *influence*. Initially it was shown that *influence* comprises deliberate aspects or actions undertaken by a company to enhance co-operation between supply chain members. It was also demonstrated that influence is a matter of degree, rather than an absolute issue (*c.f.* Webster, 1992; Grönroos, 1995). The influence scale therefore assesses the extent to which an organisation is active developing and managing influence within inter-firm relationships.

The study depicted the conceptualisation of *influence* as consisting of five components: i) *relationship focus*, ii) *channel communications*, iii) *co-ordination technology*, iv) *channel leadership*, and v) *channel power*. It showed that in order to exert *influence* within inter-firm relationships managers need to encourage and endorse consistent behaviour among employees through the creation of a culture of trust, commitment and co-operation; open communication networks where information sharing is facilitated by a sound co-ordination technology platform; and channel leadership developed through good market knowledge and a strong market position (channel power).

Relationship focus forms the first dimension of *influence*. The study revealed that *influence* involves the development and bi-directional communication of a core corporate culture of trust and commitment across all levels, functions and business unit areas. This helps firms build confidence in their trading partners. By developing a culture of trust firms more readily commit themselves to chosen inter-firm relationships. In so doing, companies also establish desired co-operative behaviours between trading partners. The findings related to this dimension contribute, in numerous ways, to the different strands of literature on supply chain configuration. First, they show that *influence* partly embraces the articulation of the resource-based

view by valuing the intangible assets associated with the development and maintenance of relationships (*c.f.* Hunt, 1997). This builds on existing literature that advocates the link between trust, commitment and performance (Morgan & Hunt, 1994; Blois, 1999; Amaldoss, Myer, Raju & Rapport, 2000). Secondly, this dimension stresses the role of managers in developing a company culture in which inter-firm relationships can succeed. It empirically supports key arguments in organisational studies suggesting that the company culture should be emulated by values and beliefs shared by employees (Cairncross, 2002) and that top managers play a crucial role in company culture development (Moorman, Deshpande & Zaltman, 1993; Kapser-Fuehrer & Aashkanasy, 2001).

The relevance of *influence* derived from the *relationship focus* dimension also bridges the vertical integration literature. Indeed, the results emphasise that inter-firm relationships form a key component of supply chain configuration and unless a culture exists within which such a relationship might prosper then the opportunity to achieve vertical integration through the pursuit of inter-firm relationships will cease to exist (*c.f.* Philips & Mahoney, 1985; Mahoney, 1992). This empirically supports the conception of the embededness of *relationship focus* throughout the business and its employees as a core part of the approach, as advocated in the vertical integration literature (Blois, 1972; Powell, 1987; Johnston & Lawrence, 1988; Mahoney, 1992).

Channel communications form the second dimension of *influence*. Findings related to this dimension combined elements discussed in the marketing and channel communications literature. This dimension was conceptualised in line with the work of Mohr & Sohr (1995), drawing on the role of direction, quality, formality and frequency of channel communications together with the level of information share. Additionally, this research also draws heavily on the most recent communications literature in its consideration of co-ordination technology as a platform from which inter-firm communications strategies can be put into place (*c.f.* Doyle, 2000; Hammer, 2001; Langabeer & Rose, 2001; Cairncross, 2002). Indeed, in line with this literature, our research showed that centrally controlled and standardised computerised information sharing and communications systems were an integral part of successful inter-firm relationships. Co-ordination technology is the most practical dimension of

influence and plays a key role in supporting communications, leadership and can leverage channel power (*c.f.* Hammer, 2001).

Findings concerning the final two elements of *influence, channel leadership* and *channel power,* add to the channel, relationship marketing and strategic view literature. The dimensions refer to the ability and foresight of organisations to identify and successfully implement market orientation. This research illustrates the essential elements and actions to take into account when managing channel leadership. Equally it illustrates the delicate balance to be achieved in wielding channel power. These dimensions proved the most authoritative of the *influence* construct and are essential if firms are to transmit a consistent market oriented approach to their customers.

Overall, findings from this part of the research showed that *influence* calls for the integration of a wide range of activities and aspects. Many of these may already be managed and accounted for by the business. However, in practice they are often disparate and are thus viewed independently. This research suggests that *influence* should integrate five components; *relationship focus, channel communications, co-ordination technology, channel leadership* and *channel power.* Each *influence* dimension mirrors a part of the whole and in certain circumstances, one may become more important than the others. However, how the parts are integrated remains an important issue.

The next section concludes on *influence* as part of the *supply chain configuration* construct and its relationship with other research variables.

8.1.2 Supply Chain Configuration Effects

Having defined the three possible methods of integration and then established the scope of *influence* (the only identified method of integration previously undefined in this way[106]), one may ask questions regarding its relevance. Indeed, why is supply

[106] *Ownership* was previously defined in terms of the financial ownership of other supply chain stages and *transactional relationships* were previously defined in terms of simple short-term contractual relationships between supply chain members (*c.f.* Williamson 1975).

chain configuration important? Does it impact on key business areas? Do other dimensions influence it? The second contribution of this research, which relates to this question, stemmed from demonstrating how supply chain configuration links with other variables.

This led to the second research question: *"What is the effect of supply chain configuration on market orientation and business performance?"* To address this question a model was developed in Chapter 4 and subsequently tested in Chapter 7. Here, the study contributes to several strands of literature, including market orientation, vertical integration and relationship marketing.

This research adds to the market orientation literature by showing a relationship between supply chain configurations and market orientation. Indeed, downstream integration (through ownership or *influence*) is a key dimension in the articulation of a customer-oriented emphasis, and integration (either upstream or downstream) through *influence* is the cornerstone for a competitor-oriented emphasis. These findings are pioneering, as previous research essentially looked at the relationship between market orientation and performance.

The findings also contribute to the vertical integration literature from an instrumental perspective. The theory states that certain factors effect the supply chain configuration adopted by firms (Harrigan 1984, 1985a). The research illustrated that customer orientation leads to forward integration. It also showed that a greater degree of *influence* might be achieved through higher customer and competitor orientation.

A major contribution is also made to relationship marketing theory. Although relationship marketing theory has gathered interest among researchers in several disciplines, there is a lack of empirical work that defines and conceptualises an inter-firm relationship, or focuses on its determinants and outcomes. This study adds to the literature in relationship marketing in several ways. First, it defines and conceptualises the creation of *influence* through inter-firm relationships. Secondly, the balance of evidence suggests that *influence* plays a key role in the articulation of business unit strategy (and specifically in the supply chain configuration adopted). A business-unit level market orientation is thus a critical driver of the supply chain

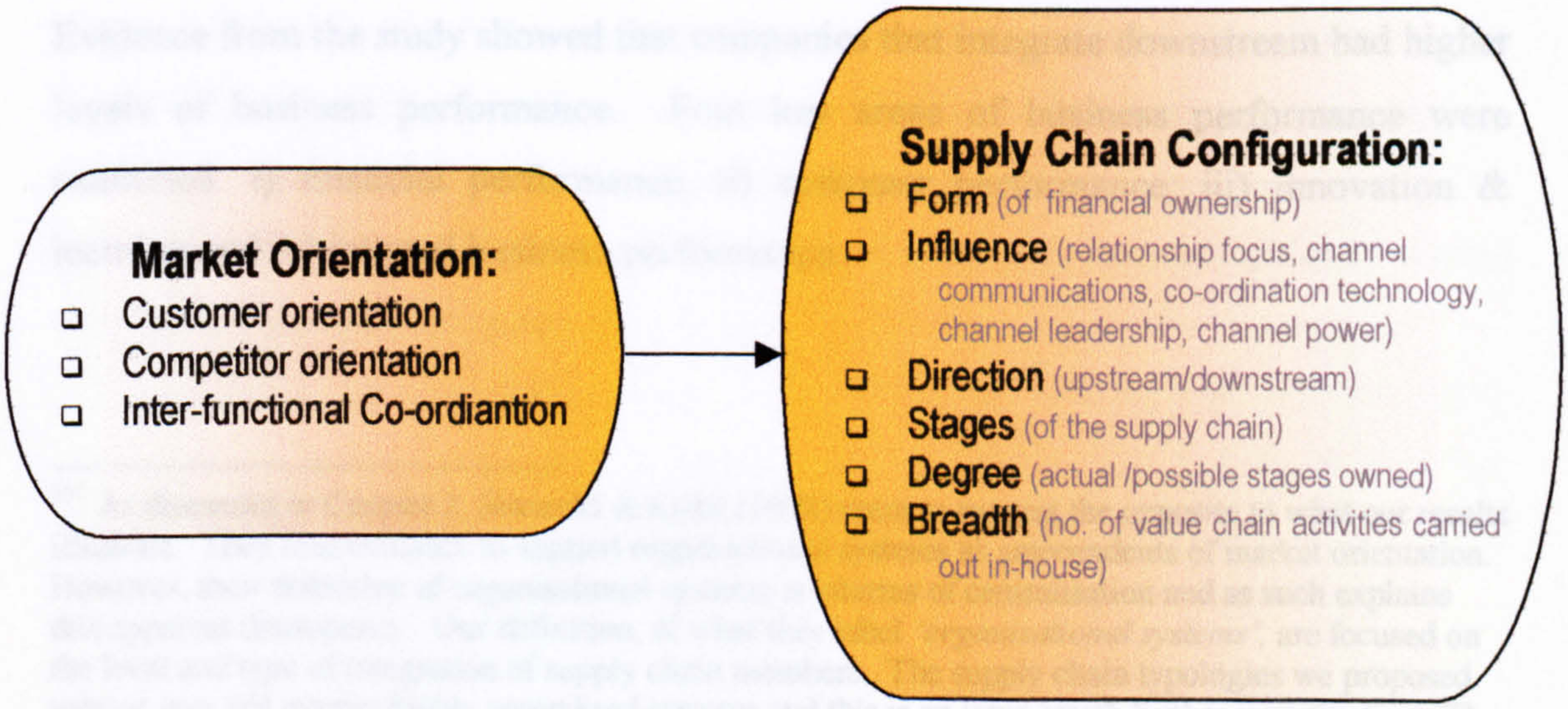
configuration adopted. The study demonstrated a link between the level and type of market-oriented behaviour demonstrated and the supply chain configuration adopted. Two dimensions of market orientation were emphasised as having a stronger relationship with four principal supply chain typologies – customer orientation and competitor orientation drive configurations that involve downstream integration. Finally, the findings proved an existing relationship between supply chain configurations that involved downstream integration and higher business performance.

A more detailed discussion of the research's theoretical contribution is described in the following sections.

8.1.2.1 Market Orientation & Supply Chain Configuration

The empirical findings from this research contribute to an understanding of the possible ways of articulating market orientation. They reveal a link between levels of market orientation and supply chain configuration by showing that relevant integration typologies address particular market orientation dimensions (Figure 8.1).

Figure 8.1 The Market Orientation-Supply Chain Configuration Relationship.



Following Narver & Slater's (1990) model of market orientation, this study showed that customer orientation is a key determinant of the level and type of integration

pursued downstream of the supply chain. This suggests that forward integration may provide the basis for attaining customer orientation (*c.f.* Jaworski & Kohli, 1993[107]). In other words this is how decisions to integrate downstream materialise. Conversely, companies that did not emphasise any form of market orientated behaviour did not integrate downstream. This is consistent with the assertion that market orientated companies either own downstream supply chain stages or build close relationships with their customers (Johnston & Lawrence, 1988; Doyle 2000). It thus appears that downstream integration, either through ownership or *influence*, is key for companies that follow a market orientation strategy as it forms an essential basis for building customer knowledge.

This expands on research in marketing and supply chain configuration that addresses the link between business unit level strategy and variables such as performance (Deshpande *et al.*, 1993; Greenley, 1995a; Pitt, Cruana & Berthon, 1996) and organisational commitment (Jaworski & Kohli, 1993). This finding adds to supply chain theory by offering the first systematic empirical support for the literature and case histories that suggest a link between market orientation and supply chain configuration.

8.1.2.2 Supply Chain Configuration & Business Performance

Evidence from the study showed that companies that integrate downstream had higher levels of business performance. Four key areas of business performance were examined: i) financial performance, ii) customer performance, iii) innovation & learning and iv) internal business performance.

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[107] As discussed in Chapter 2, Jaworski & Kohli (1993) seem to suggest the opposite to what our results illustrate. They find evidence to support organisational systems as antecendents of market orientation. However, their definition of organisational systems is interms of centralisation and as such explains this apparent discrepency. Our definition, of what they label *'organisational systems'*, are focused on the level and type of integration of supply chain members. The supply chain typologies we proposed may or may not require highly centralised systems and this is an issue worth further investigation. The relationship we model here in the conclusion chapter is thus different from that suggested in Chapter 4 (p.94) whereby market orientation is modelled as an outcome of supply chain configuration. The quantitative and qualitative findings together, provide sufficient evidence to persuade the researcher that the market orientation is an antecedent of supply chain configuration, however, further testing of this relationship would be advantageous.

This result contributes to the theory in several ways. First, it corresponds with the business performance literature, which indicates that companies need to take account of their performance in both the short and long term (Doyle & Hooley, 1992). This finding provides empirical support for the argument that supply chain configurations that are de-integrated upstream and integrated downstream can satisfy both cost-efficient, short-term and customer-effective long-term performance criteria (Langabeer & Rose, 2001). Second it supports the supply chain and channel communications literature that stresses the impact of co-ordination technologies in facilitating new and effective supply chain configuration typologies (Doyle, 2000; Pereira, 2001). The positive relationship between the four forms of business performance and key supply chain configuration typologies supports the argument that supply chain configuration is a tool for leveraging business performance over both the short and long-term. To the researcher's knowledge, this relationship has not been empirically tested in earlier work. By establishing supply chain configuration as an antecedent of business performance, the study adds to the supply chain and vertical integration literature, and helps to validate the supply chain configuration construct.

8.1.2.3 Market Orientation & Business Performance

This study also contributes to the market orientation literature by providing further evidence of the market orientation-business performance link. The link between market orientation and business performance was positive, corroborating the argument that market orientation has a positive impact on business performance (e.g. Narver & Slater, 1990). It expands this literature by showing relationships to performance criteria beyond that of financial performance (which has typically proved the focus of this field of research).

8.1.3 The Market Orientation-Supply Chain Configuration Relationship

A further contribution of this study relates to the qualitative section of the research design. This was to address the final research question: *"How might these integration typologies affect market orientation and business performance?"* In light of the findings and conclusions presented in Section 8.1.2.1 above, this final question was more concerned with how market orientation might affect the method of integration selected by a firm and how this in turn effected business performance. This question requires an understanding of where value lies within a business. The research illustrated that increasingly the value of a business lies not with the assets that appear on the balance sheet (e.g. plant and machinery) but rather with intangibles; brands, patents, franchises, software, research programmes and ideas (*c.f.* Cairncross, 2002). These *'knowledge'* assets require companies to build an understanding of how to get the best from their knowledge capital. This demands an understanding of what knowledge resides with its employees, suppliers and customers and consequently forces business to consider carefully the possible methods of integration open to them. The understanding of where value resides has lead many organisations to pursue market orientation.

8.1.3.1 The Demands of Market Orientation

Narver & Slater (1990) describe market orientation as,

> *"...the business culture that most effectively and efficiently creates superior value for customers." (p.20)*

They identify three behavioural components that enable a firm to implement a market orientation – customer orientation, competitor orientation and inter-functional co-ordination. The findings illustrate how market orientation (and specifically customer orientation) effect supply chain configuration.

8.1.3.1.1 Customer Orientation

Customer orientation requires that a seller understand a buyer's entire value chain (Day & Wensley, 1988), not only as it is today but also, as it will evolve over time subject to internal and market dynamics. This suggests a need for downstream integration.

Downstream of the supply chain lies a company's customers - whether they be the next firm in the supply chain (e.g. wholesaler, retailer) or the ultimate consumer, they are the customer. The findings illustrate that downstream integration is occurring in firms that record high levels of customer orientation. However, the method of integration depends on the firms circumstances and resources (Hunt, 1997). For example, the impact of technology in this area has been far greater than simply a new channel to reach customers. Internet technology has the potential to dramatically cut costs in several key areas: the cost of delivering some products and services; identifying and maintaining the small number of customers who account for the majority of their profits; developing new ways to sell products adding value through service, rather than merely on price; and persuading customers to return again and again. Taking advantage of these opportunities and building durable customer loyalty is making the difference between high performance and low performance companies. It affects their ability to implement market orientation.

Empirical findings show that firms that integrate downstream, either through ownership or *influence*, are likely to have a higher market orientation and business performance than those that do not. This perspective differs from the traditional view of vertical integration (e.g. Harrigan, 1986; D'Aveni & Ilinitch, 1992) as it suggests that firms can be vertically de-integrated according to the traditional perspective of financial ownership, yet still achieve downstream (forward) integration through *influence* within inter-firm relationships (*c.f.* Mahoney, 1992). On the other hand it is very much in line with marketing and strategy findings (e.g. Doyle, 2000; McKenzie, 2001; Cairncross, 2002) that believe the integration with customers, the careful management of customer relationships, and the sharing of this knowledge with other supply chain members is crucial to business success. According to our findings, firms that do not integrate downstream fail to succeed on two fundamental dimensions of

market orientation; customer orientation and competitor orientation. Consequently they tend to have a poorer business performance.

Traditionally the literature has focused on the efficiency perspective of supply chains (*c.f.* Williamson, 1975) but more recently there has been an emerging view that this approach in isolation, whilst important, is woefully inadequate for developing strategies that satisfy the ultimate customer - the consumer. It threatens the long-term performance of the firm as efficiency drives sometimes result in cost cutting measures that benefit short term performance at the expense of long-term performance (Quinn & Hilmer, 1995; Cox, 1997). Our findings suggest that supply chain configuration developed in conjunction with market orientation goes some way to addressing the dichotomy of these seemingly contradictory business performance objectives. By integrating downstream, towards the customer, firms are better able to build customer knowledge and thus an understanding of how they might increase added value contribution within the supply chain. When the researcher began this project there was little evidence of this view in the literature. Apart from the ground swell of opinion that suggested IT (and more particularly the Internet) was about to revolutionise the way we do business (Porter & Millar, 1985; Glazer, 1991; Berry, 1995; Alba, Lynch, Beitz, Janiszewski, Lutz, Sawyer & Wood, 1997) there was no dispute with the efficiency perspective. However, we now see the emanation of market orientated supply chain strategies in the work of Niaj, Gupta & Narasimhan (2001) and Langabeer & Rose (2001).

Niaj, Gupta & Narasimhan (2001) develop a general model to relate customer profitability with customer characteristics within a supply chain; the objective being to configure the supply chain to serve the most profitable customers. Langabeer & Rose (2001) suggest the supply chain, as we currently know it, to be '*irrelevant*' - to be replaced by a demand chain. The demand chain differs from the supply chain in one important respect – it has a marketing focus.

The supply chain focuses on moving goods through a network to the consumer. The practice revolves around streamlined manufacturing and distribution processes improved communications between partners and seek ways to reduce total delivery cost. Whilst all these are valuable practices, the demand chain offers a new

dimension. It recognises that the process starts with the consumer and that *this* drives strategic and operational alignment upstream, through sales channels, retailers, distributors, manufacturers and other sources of supply. In other words, the firm uses its supply chain configuration to achieve its market orientation objectives. These theories are reflected in the empirical findings and have important implications for the marketing and operations management literature.

Table 8.1 Supply Chain and Demand Chain Differences

Supply Chain	Demand Chain
Focused more on efficiencies	Focused more on effectiveness
(e.g. are we making these products at the least cost per item)	(e.g. are we making the right products?)
Processes are focused on execution	Processes are focused more on planning
Cost is key driver	Revenue is key driver
Short-term oriented, within the immediate and controllable future	Long-term oriented, within the next planning cycles
Typically the domain of tactical manufacturing and logistics personnel	Typically the domain of marketing, sales and strategic supply chain managers
Focuses on immediate resource and capacity constraints	Focuses on long-term capabilities not short-term constraints
Historical focus on manufacturing planning and control	Historical focus on marketing and supply chain alignment

Source: (Langabeer & Rose, 2001)

Our findings illustrate that firms that do not integrate downstream (i.e. rely on transactional relationships) are not proficient at collecting, interpreting and using customer and competitor information. In order to achieve a strong market orientation firms must master these skills. Information is more likely to be useful if it is filtered at the point of collection and carefully structured. Furthermore, often the supply chain member or department collecting data is not the same as the one using the information for selling. Without integration, these negotiated standardised formats are nearly impossible to develop. The care taken when the data is collected and stored determines its eventual value – again this makes collaboration with downstream firms a necessity. Enormous quantities of information about individual customers may be rendered useless if the marketing department cannot extract ways to identify which customers are the most profitable and why (Cairncross, 2002).

Influence, the Customer & the Brand. When companies accumulate customer information efficiently, they know more about which customers generate the most

profit. Managers can then apply this information to segment customers, cosseting the most valuable and limiting the unprofitable ones. This process can then help them to develop and apply appropriate pricing discrimination strategies or the bundling of products and services, adding value to the customer and generating higher profits for the organisation. Companies are continually reminded that it costs much more to find new customers than to retain existing ones. Therefore, the satisfied customer becomes an increasingly valuable commodity. The growing emphasis on the benefits of building a continuing relationship with individual customers (*c.f.* Möller & Halinen, 2000; Pepall & Norman, 2001; Sirdeshmukh, Singh & Sabol, 2002) is one sign of the high cost of acquiring them. Cairncross (2002) observes that in the past, such relationship building was easier for companies selling services than for manufacturers. However, the Internet has introduced a new channel for customer interactivity, allowing companies what they fondly call a *'conversation'* with customers. Online activity generates all the useful information, which can be used to give customers the impression that a company has remembered their preferences.

In a chapter titled, *"Do You Want To Keep Your Customer Forever?"* Pine *et al.* (2000) argue that such relationships work because,

> *"Customers do not want more choices. They want exactly what they want – when, where and how they want it."* (p.53)

Clearly the methods used to retain and gain customers will vary depending on where the firm is positioned within the supply chain. Involving customers with refining products and developing new products has been very successful in both a business-to-business (B2B) and business-to-customer (B2C) context, as our findings illustrate. But none of this is possible without downstream integration. It is vital to both a firm's market orientation and performance.

Influence was found to be the predominant method of integration downstream at 55% of our firms. There was a 50:50 split between high performers and low performers in this group. Equally 50% (all the high performing firms) achieved a high market orientation score, 32% achieved medium scores and 18% low. The high performance firms achieved the highest market orientation scores. Why should influence be a

successful strategy for some businesses and an unsuccessful one for others? This 50:50 split is our most contradictory result but can be explained through a closer examination of these two groups.

Group One, the high performers, covers numerous businesses and industry sectors, all involved in manufacturing. What they all have in common is their ability to manage and maintain influence in relationships. They are able to identify and manage strategic partnerships. They have clearly set long-term and short-term business performance objectives, clearly identified core competencies and an understanding of the added value created by their downstream supply chain partners. For example, the Supply Chain Director of Unilever comments,

> "*it's simple, if we don't know what the consumer wants, we can't deliver what the City wants, what our shareholders want, what our employees want...If we don't build special relationships with our customers all this becomes much more difficult...we have two sets of customers you see, the customer* [e.g. the retailers; Tesco, Sainsbury's etc] *and the consumer.*"

Satisfying the customers of these firms has included changes in delivery frequencies and quantities, changes in packaging to minimise the resources required at the retail outlets for merchandising purposes and more particularly in the FMCG[108] sector[109], reaching agreements with manufacturers on shelf space requirements and new product introduction[110]. Another change in this market has been the increasing use of own label products by supermarkets. This puts further emphasis on the importance of inter-firm relationships as the added value created by branded products becomes threatened by high quality, low price substitutes. Branding is as important now to firms as it ever was. Over past generations brands have provided the clearest link between firms and their customers (Doyle, 1995). Cairncross (2002) asserts that this connection will remain at the heart of customer relationships in the Information age. Brands bring trust for the consumer. Cairncross (2002) explains,

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[108] Fast Moving Consumer Goods.
[109] Our high performance cases in this sector, (adopting influence downstream) include: Unilever, Cadbury, Tate & Lyle, Kellogg and Bestfoods.
[110] New product introduction is an important part of the FMCG business and accounts for as much as 70% of new business at some of these firms.

"Brands provide the customer with vital evidence of the origin of a product. The foundation of their value is the returning customer: a brand is trustworthy mainly because trust is what secures loyalty." (p.51)

But there is a warning here. Most brands that succeed do so because they represent a big simple idea. The Internet provokes the fragmentation of markets through its ability to give customers more personalised and customised product and service offerings. The impact of the Internet is to drive segmentation, tailoring products for individuals. Companies must proceed along this route with caution as making a customer feel too much like an individual may well undermine brand value (*c.f.* Zipkin, 2001; Cairncross, 2002). Interestingly, the absence of a brand was observed within firms falling into the low performance group of influence adopters.

Group Two, the low performers adopting downstream integration, includes Beta. Beta is the result of a joint venture between two food manufacturers (one UK based and one Italian based), set up specifically to service the supermarket own label industry (and therefore holds no brand identity in its own right). It sources requested products (own label chopped tomatoes, salad dressings, noodles etc.), develops the products in conjunction with manufacturers, (sometimes its parent company and sometimes independents) to the satisfaction of their customer (the supermarket) and in exchange are awarded an exclusive arrangement on own label supply for that product line. According to Beta the customers are tough, demanding high quality, low price products. But Beta considers the financial risks associated with developing a manufacturing unit to produce these products in-house to be prohibitive. They believe they can virtually integrate with the supermarkets, using their market knowledge and experience to develop successful customer oriented products. This all comes at a price, as the Purchasing Director of Beta observes,

"it's [profit margins] *tight, Tesco* [one of Beta's principal customers] *tread a fine line. They know we have to stay in business, they know about prices and what's going on in the market...they also know what the branded products go for and the price differences they're looking to hit - between branded and own label products – that's what it's all about. That's why they're so successful.*

We work.....hard for them but we get our slice of the action...and it keeps us all in business."

These firms appear to be using influence downstream with more limited success. A number of reasons transpire:

- the intensely competitive environment is an uphill struggle for firms that do not already assume a market-leader position;
- downstream strategic partners exercising high levels of channel power and channel leadership;
- the level of resource commitment both upstream and downstream to inter-firm relationships puts a strain on resources;
- the absence of a strong brand identity reduces added value and profit margins.

For example, when firms were asked about their performance compared with that of their matched pair, the differences were explained as follows; *"We do OK, it's just that we're not market-leaders in that sector... so you'd expect there to be a difference."* (TRW). *"...We're not really the big boys, but we do have a role to play...we have our own little niche."* (Napier Brown). *"We've got our corner and we defend it."* (Hichrom). *"When the customer says jump, we say, how high?"* (Jackel International). *"They say the customer is king, and it's true – they dictate the terms really."* (Scandin Windows). *"No matter what you do you need to work with your suppliers and customers; it's unavoidable but it's also expensive. If you already have the resources to put in, you've got a head start."* (Weetabix).

Otherwise, Group Two are a difficult group amongst which to draw comparisons. The majority of the low performers achieved medium market orientation scores (Figure 8.3). As before, these firms were not failing companies.[111] Despite the differences these firms appear to have a particular niche in their marketplace. They use influence downstream to their advantage, but strong supply chain members and competitors can impose limitations to these gains. Impeded business performance in

[111] Two of the cases adopted transactional relationships upstream – which did not seem inappropriate as their principle purchase was of commodity products. The remaining nine firms adopted the influence approach upstream.

turn has implications for available resources to re-invest; the resources available to develop and implement market orientation behaviour and to make vital changes to supply chain configuration. For example, the introduction of integrative software applications such as SAP, automatic re-ordering systems and databases of delivery and service information requires a huge resource commitment. Whilst the Internet provides a much more affordable platform from which to build such an integrated system, the difficulties in finding and affording skilled personnel with the ability to design and implement such systems should not be underestimated. This situation describes the value of interconnectivity[112] between supply chain configuration, market orientation and business performance, not only for single firms but also for all firms within the supply network and underlines the contribution of this research. But the implications of this research are much more far reaching. As Cairncross (2002) explains, some of the techniques that companies apply to gain and retain customers online, will also help in the recruitment and management of employees, now so necessary to the future company's success. The principles are the same: educating new employees about the company and its marketplace is expensive – it typically takes an employee several years to understand a company well enough to make a truly valuable contribution. In addition, companies that are good at building customer loyalty often do so on the basis of loyal staff (Reichheld, 2001). Loyalty is, therefore, a hallmark of a successful corporate culture rather than merely a marketing tool (Cairncross, 2002).

It is apparent that the traditional relationships between manufacturers, wholesalers and retailers are changing. The challenge for managers will be to create a form of distribution that realises the potential of the Internet. They must define the role of each delivery channel relative to the customer segments that prefer it. Physical delivery channels must work in tandem, complementing the electronic ones. This should create a mix of integration, segmentation, identification and authentication that will become increasingly common and complex as companies develop. These developments must progress on the basis of what customers want and not on what

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[112] Interconnectivity is a phenomenon associated with quantum physics and describes the relationship between numerous particles that interact with each other in such a complex manner that it becomes impossible and inappropriate to think of them as separate items. This euphemism is a useful analogy in our situation as it helps to imply the complexity of the relationships between the multiple constructs with which we are concerned.

companies choose to deliver. New companies can create and adopt these new business models more easily than long established structures with a legacy of supply chain and relationship responsibilities. As these older firms seek to find new ways of satisfying their customers, they must also be innovative in their approach to existing supply chain partners, discovering new functions they might usefully carry out. Cairncross (2002) cites the example of the American car distributor networks, holding huge stocks and offering customers limited choice. The possibilities of transforming such a supply chain to a buy-make-take structure requires all supply chain members to take on board the connotations of the customer and Internet technologies. Traditional business models now require an immense amount of rethinking. Such demands blur the distinctions between manufacturing and service offerings and bundling products and services increasingly occur in an effort to cross-sell, create value and satisfy customers over the long-term. A strong long-term business performance seems to require the long-term loyalty of the most valued customers.

Our empirical findings further support the arguments presented by Mahoney (1992) for the isomorphic nature of influence and ownership. Mahoney (1992) stresses his belief that supply chain configuration is not either an economic structure *or* choice of governance typology. Rather it is a combination of the two. Mahoney draws on the work of Blair & Kaerman (1983) who point out that it may be possible to replicate the outcome of vertical financial ownership with a contractual *influence-based*, inter-firm relationship.[113] As we have seen influence has proven to be a useful method of integration downstream and has been positively associated with higher levels of market orientation and business performance. As we shall now see, ownership downstream has been shown to have equally positive results.

Ownership & Customer Focus. Companies evolve more sophisticated customer relationship management techniques as they grow, often shifting their approach from mass marketing to targeting. They discover that different market segments require tailored products, services, pricing and communications. Companies need to reorganise around these customer segments. This is immensely difficult, and as the tenet of the Internet suggests, requires a degree of centralisation and strong leadership.

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[113] For a more detailed discussion on the isomorphic nature of ownership and influence see Ch.2, pp.47-49.

When a firm is positioned at the end of the supply chain, at the inter-face with the ultimate customers (the consumer), customer knowledge puts them in a strong position to provide this leadership, not only within the organisation but also throughout the supply chain network.

Ownership was found to be the predominant method of integration in 28% of cases. All but three of these firms (73%) were high performers. Yet only one firm reported low levels of market orientation. Two low performing firms recorded high levels of market orientation – Amivo and Alpha.[114]

Two firms were integrated downstream through ownership because of their history and positioning at the end of the supply chain. These firms hold the final stage of the supply chain as their core competence. Tesco is an interesting example as their ownership of the most successful retail supermarket chain in the UK has stood them in good stead in their development of new channels; specifically home delivery services and Internet shopping. Their high street presence has been an important barrier to entry for virtual retailers in the dot.com industry. Adopting a '*clicks and mortar*' strategy (Pereira, 2001), whereby firms develop Internet services alongside high street services, consumers can reaffirm their quality and brand confidence in Tesco at real stores so that the entire '*shopping experience*' can be enjoyed (*c.f.* Haubl & Trifts, 2000; Novak, Hoffman & Yung, 2000). The consumer then draws upon this memory and knowledge when experimenting with the virtual shopping experience (Haubl & Trifts, 2000; Davenport, Harris & Kohli, 2001). In turn, the information gathered from online shoppers is easily and instantly collected and used to develop both the real and virtual shopping experiences. The parallel of these two supply chain stages is important, the real bricks and mortar (the high street presence) reassures the customer that the infrastructure is truly and reliably behind the virtual offering. Whilst not all firms pursuing this approach have succeeded, it is apparently working

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[114] The performance classifications of these firms were highlighted in section 8.3.2. It seems that, whilst they are (in the context of our matched pairs) '*lower*' performing firms, they are not failing firms; they are succeeding without achieving the heady heights of market-leader status. It is apparent that in high capital investment industries (in our cases, defence and bitumen production), failing companies do not survive. Selecting a truly '*low*' performing match for high performers was a near impossible task in these instances. This is, therefore, a methodology issue. Despite this limitation some interesting observations were made within this group.

to great effect at Tesco.[115] Tesco has succeeded in organising itself for customer focus.

The Internet is being used by Tesco to shape its relationship with customers and not merely for cutting costs and collecting customer information. Their Internet experience has boosted the importance of the Tesco brand, offering a story of contented, successful people who enjoy a little luxury, which it attaches to its products and services. This has driven Tesco to redefine its relationship with its suppliers and further develop its segmented markets from the offer of a 7p loaf of bread to its *'Tesco's Finest'* luxury range. They now discriminate more vigorously among customers. This customer centric approach is not only valid for firms positioned at the retail stage, it holds lessons for all managers throughout the supply chain, though some firms have placed so much value on the collection and interpretation of consumer information, they have integrated downstream through ownership.

Two of our cases had integrated downstream through an active acquisition and merger programme, Nutricia and Clarks. Nutricia cited the need to gather customer information and build customer and competitor knowledge as the principle driver of downstream integration. Their retail outlets offer both their products and competing products to customers. The Supply Chain Director of Nutricia explained,

> *"...it's* [downstream integration] *the best way of really getting to grips with what's happening in the marketplace; what's new and what's popular..."*

Clarks are an interesting example because they have integrated through part-ownership via a franchise programme with retailers. This way they control the customer facing supply chain activities, have unlimited access to consumer information available through the retail outlets, but do not take on board all of the fixed costs and financial risk associated with 100% ownership of these outlets (*c.f.* Wise & Baumgartner, 1999).

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[115] Tesco has several online shopping services including Tesco's Bookstore, Tesco's Baby & Toddler Club and Tesco's grocery store. All can be found at www.tesco.com

Finally, six firms had shortened supply chains, cutting out the traditional retail stages and selling directly to the end users. This is sometimes referred to as the Dell model (Magretta, 1998; Wise & Baumgartner, 1999). For example, Safestyle, a manufacturer of windows and doors, do not have any retail presence. They sell directly to consumers using vast databases (based on postcodes) to target key market segments. With a presence on the Internet, Safestyle also encourages unsolicited enquires.[116] By not tying capital investment into retail outlets Safestyle are able to keep most costs as variable costs and thus avoid the risks associated with such investment (*c.f.* Rangan & Adner, 2001). By connecting the customer directly with the manufacturer, intermediaries are often reduced and in this case, completely removed. The manufacturer increases profits by saving on distributor margins. However, this approach requires the manufacturer to take on some of the activities previously carried out by the distributors/retailers including communications, warehousing, providing choice, physical delivery, financing and after-sales services. What is at issue here is whether the producer can be a more efficient and effective force in carrying out these activities than more traditional, downstream supply chain members. This is the difference between the high performers and the low performers in this group. When a firm is able to execute these activities successfully further benefits ensue. The direct customer contact also enables them to build customer knowledge through record keeping and analysis of customer contact details and thus builds market orientation.

Whichever supply chain approach is considered most appropriate in the circumstances, downstream integration must be considered in conjunction with upstream integration as part of an holistic approach to supply chain configuration. This research has suggested that supply chain configuration is driven by market orientation objectives (Section 8.1.2.1, p.309). Similarly, existing literature suggests that market orientation is driven by business performance objectives (*c.f.* Narver & Slater, 1990; Kohli & Jaworski, 1990), The results from the discriminant analysis results presented in Chapter 7, show that these three constructs are inextricably linked. But a problem arises in interpreting these particular findings is in the context of causal relationships. What we cannot know from these research findings is which factors are

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[116] Safestyle's web site can be found at www.Safestyle.co.uk

antecedents or outcomes of which constructs. The only statistically significant relationship identified was that between market orientation and business performance ($H_{0/3}$).[117] Rather our support for the suggested causal relationship comes from the qualitative data. The message lies in the role of downstream integration – and in market orientation. These empirical findings provide evidence to support our theory that downstream integration puts firms in a far stronger position to adopt and implement market orientation behaviour. This is an important contribution to the vertical integration and market orientation literature. For managers it suggests a radical reorganisation of supply chains around the customer. Managers must take on board the incentives required to make this happen. Carefully developed incentives for the employees that encourage the sharing of customers and the enlisting of talented people to help identify the opportunities this creates will help this happen. Without such foundation, the most enlightened reconciled data and segmentation plans will make little difference – this is an immense task. As Cairncross (2002) observes,

> *"Breaking down the tyranny of the distribution channel requires immense willpower and perseverance on the part of senior management at the highest level."* (p.68)

Most managers already have elaborate physical distribution networks that they are reluctant to discard.

8.1.3.1.2 Competitor Orientation

Competitor orientation means that a seller understands the short-term strengths and weaknesses and long-term capabilities and strategies of both the key current and the key potential competitors (Day & Wensley, 1988; Porter, 1980, 1985). Paralleling customer analysis, the analysis of principal current and potential competitors must include the entire set of technologies capable of satisfying the current and expected needs of the seller's target buyers.

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[117] The discriminant analysis suggests that market orientation levels are a good predictor of business performance levels.

This definition of competitor orientation encompasses considerations traditionally dealt with in the operations management literature but in this case the focus is on external operators and not on internal ones. In other words, a competitor orientation includes considerations regarding the control and efficiency aspects of competitors operations. What can our competitors offer faster, more cheaply, through more convenient channels, than we can? In an attempt to increase their competitive position, firms are focusing on their internal operation. This has resulted in a reassessment of core competencies and the rapid increase of outsourcing. Many firms have de-integrated upstream, buying in expertise and capitalising on supply chain member's core competencies. Amongst our high performance cases we see the emergence of a distinction between transactional and influence relationships upstream, developed through a conscious and careful strategic approach oriented towards a balance between efficiency and effectiveness. Cairncross (2002) suggests that companies of the future will use the Internet upstream to achieve two distinct goals: 1) to widen the range of potential suppliers and 2) to deepen the relationships with existing suppliers. The Internet enables firms to seek out new suppliers, make occasional purchases, and compare prices more easily and globally than before. Equally, the communications benefits offered by the Internet can facilitate the building of inter-firm relationships with old and trusted suppliers, reducing administration costs and accelerating dealings. Cairncross (2002) predicts that in the future, companies may separate these two functions, as they require such different approaches. This suggests that firms should not seek to pursue *either* transactional relationships *or* influence upstream, but apply the two approaches in parallel, dependent on the sourcing requirements. Our findings support this theory. This has implications for both purchasing and strategic sourcing.

Purchasing. High performance firms are developing purchasing frameworks from co-ordination technology platforms via online catalogues, listing products at prices that have been centrally negotiated with suppliers. Hierarchical purchasing approval structures are thus flattened as staff access and order directly from the website. Administration is reduced because electronic orders pass directly to suppliers. Staff benefit from faster turnaround times. This approach has been most widely applied to indirect purchasing but it has implications for direct purchasing and strategic sourcing.

Direct purchasing has been strongly associated with e-commerce since the 1980's, largely through the use of Electronic Data Interchange (EDI) systems.[118] This suggests that the introduction of Internet technologies into the direct purchasing of the materials and parts used by companies to make their products would involve less upheaval. The main issue appears to be how to adapt existing proprietary electronic networks to the Internet. Companies are experiencing difficulties with this progression because the Internet enables quite different relationships with suppliers. EDI offers a number of benefits the Internet replicates, not least speed and accuracy. However, EDI has several limitations: it requires an expensive proprietary network built on costly private lines; it locks together buyers and suppliers that can afford to invest whilst keeping smaller firms away; it cannot adapt quickly when market conditions are changing (it is poorly designed for negotiating contracts); it requires the development of an additional proprietary network to link purchasing to the manufacturing plant. The Internet is helping to overcome these limitations.

Strategic Sourcing. In the introduction to this thesis (Chapter 1) we discussed how the availability of information, particularly regarding customer demand, was changing the concept of the supply chain to that of a *'demand chain'*, through which products are pulled by the customer's needs rather than pushed by production decisions. The availability of information beyond the boundaries of the firm has been a dominant theme in this chapter, and nowhere is its application more relevant than in a firm's attempt to apply influence in upstream relationships with suppliers through strategic sourcing agreements. Here the free flow of information and, therefore, trust is vital to a firm's successful supply chain management. Key suppliers must have better information about what is happening at all points in the supply chain. They must share the retailer's understanding of rapidly changing market behaviour and know something of what their fellow suppliers are doing. Better information allows greater certainty. That in turn generates more accurate forecasting of demand and thus lower inventories. However, in practice no firm is likely to get away from these challenges scot-free. The task for companies is to utilise information to balance the risks of sudden market changes against the cost of holding inventory. Increasingly companies are turning to Internet technologies to aid them in this task. As companies struggle to

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[118] Purchase orders and invoices are transmitted directly from one computer to another.

reduce inventory and achieve just-in-time delivery, they depend more than ever on the efficiency of their suppliers and on their own ability to manage them. If firms fail to achieve this they will suffer an uncomfortable shift from just-in-time to just-too-late.

Further, a firm wishing to develop a strategic partnership with a supplier must have the means by which to service that relationship. As strategic relationships are often formed between firms that are geographically separate, they must be able to facilitate the sharing of regular, accurate, timely and detailed information between the two companies (Mohr & Nevin, 1990; Mohr & Shohi, 1995). Information technology (IT) is facilitating integration by reducing transaction costs (Doyle, 2000; Pereira, 2001). As information technology becomes more affordable and accessible it is becoming increasingly widely implemented and an accepted part of business life. More particularly, one of the most accessible and widely adopted forms of information technology – what we refer to as co-ordination technology - is revolutionising these strategic partnerships. E-mail and the world-wide-web are perhaps the best known. Academics and managers seamlessly cross the Internet, Extranets and Intranets. The use of co-ordination technology has changed the way firms do business and the supply chain configuration they are able to adopt. Managers are increasing their outsourcing, and channelling their resources into core competencies. The purchasing director at Rolls-Royce observes,

> "*We have to get fixed costs down. If you outsource it becomes a variable cost and your suppliers take the risks with you. We're not the experts in a lot of the supplies that we use, but our suppliers are. We focus on our core competence, which are the finished engine and some parts of the engine which give us some sort of strategic advantage. There are various pieces of the engine that we believe we can make in that way and no one else can. That gives us an advantage when we come to sell it – either in weight or performance.*"

But this has not been the traditional method of doing business at Rolls-Royce. As with many other companies Roll-Royce has had to react to an increasingly knowledge-driven business environment (Gassenheimer, Sterling & Robicheaux, 1996; Moreau *et al.*, 2001) together with increased pressure from shareholders to leverage business performance. A representative explains,

"It's changed over recent years. Rolls-Royce traditionally has been quite short-term in its supplier relationships. In the last two years we have moved more towards looking in a structured way at the supply base... and then making sure we're with the right suppliers. Then entering into 3-5 year contracts with those suppliers. This simply wasn't feasible five years ago. E-mail, the Internet, well computers generally, have made a huge difference to how we can manage and communicate within these supplier agreements. It's a shrinking world."

Lee (2000) identifies three forms of information typically to be shared with suppliers: 1) demand forecasts and sales data; 2) knowledge; 3) decision making processes.

Companies' exchange demand and sales information in order to facilitate better planning, increased efficiency and reduced inventory within the supply chain. This raises the issue of common standards, which are vital to companies receiving and interpreting vast quantities of data through an almost constant electronic stream. Unless each party can interpret the data it remains exactly that – data – and never makes the critical transformation into valuable and useful information. Standardisation results from a carefully negotiated agreement between the parties and requires clear and precise definitions of all items being measured.

Sharing knowledge within customer-supplier agreements can leverage performance. For example, rather than simply sharing the demand forecast data, sharing their knowledge of the methods of demand forecasting can enable all supply chain members to do better.

Finally, sharing the information regarding the decision making process, and as a result sharing the right to make those decisions can also add to efficiency, ensuring that tasks within the supply chain are not repeated. Lee (2000) cites the example of Pampers (nappies manufactured by Procter & Gamble). If Wal-Mart stocks more Pampers, then Procter & Gamble and 3M (who manufacturer the sticky tapes and supply them to Procter & Gamble) need not have three separate decision-making processes for a single product. These companies have developed a system that allows one company to decide for all three. The rise of electronic data interchange has

facilitated such information exchange over the past four decades but the intensity of such practices is developing at an alarming speed. This is perhaps because genuine efficiency improvements are being created. But such gains are not easily won. They require an openness to business that is unfamiliar and also uncomfortable for many managers.

It should be remembered that the Internet is only a tool and does not solve all problems. In fact, the level of information sharing it affords (essential to the integrating of supply networks) raises difficult issues of confidentiality and trust. But managers should remember information is the key to an efficient supply network. Making information available simultaneously along the supply chain to a variety of suppliers (great and small) turns the supply chain into a network. Cairncross's (2002) analogy of this process of information share is a useful one. She explains,

> *"Thus the Internet turns the company into a sort of portal – a semiprivate exchange – through which orders arrive for redistribution among suppliers."* (p.140)

This approach improves forecasting and reduces the amount of inventory held all along the supply chain (*c.f.* Lee *et al.*, 1997; Hammer, 2001; Langabeer & Rose, 2001; Cairncross, 2002). The effect is to bind manufacturer and supplier tightly together.

Building influence is far from easy. It often requires firms to share information with suppliers that would be fatal in the hands of competitors. Such information would knock down the share price if leaked to investors. This requires an enormous amount of trust. Firms must be sure that the benefits of closer collaboration outweigh and minimise such risks. Moreover, once firms have access to each other's internal systems, firms that supply several competing purchasers must have reliable compartmentalisation of information. Our top performing firms required suppliers to use different teams to work on their competitors' products. They were also permitted unannounced security checks on the premises. The biggest threat comes perhaps from suppliers' core competence – as suppliers' skills develop through collaboration, what

prevents them applying these improved core competencies to rival purchasers? A culture of trust becomes increasingly vital.

8.1.4 Supply Chain Configuration

The conclusions of this exploration of the supply chain configuration phenomenon must be that some supply chain configurations are more likely to be successful than others; some configurations are more strongly associated with high levels of market orientation than others, but this is dependent on circumstance. However, one crucial factor remains, that the supply chain must be considered as a whole. Indeed Harrigan observes,

> *"Because critics have not discerned how the important dimensions of vertical integration might be adapted over time (as industries change) they have not recognised how to make this a more durable and keen competitive weapon. Because successful vertical integration strategies require the co-operation of several strategic business units (SBU's), the formulation of such strategies is in the province of the chief executive officer (CEO)...Decisions regarding such SBU co-ordination (and resource allocations among them) must be made by the chief strategists. Thus effective vertical integration strategies need to reflect both business unit and corporate level strategy requirements."* (Harrigan, 1984, p.638)[119]

Taking Harrigan's comments in the wider context of integration, assuming ownership and strong inter-firm relationships to be isomorphic (Mahoney, 1992), these comments seem as applicable as ever, nearly two decades after they were written. Our empirical evidence has suggested that each of the three approaches to upstream integration bring advantages and disadvantages. Principally, levels of integration upstream must be decided upon production and control issues (the traditional supply chain management perspective – the efficiency perspective) in order to increase competitiveness. Additionally, that integration downstream, through ownership or *influence* is essential, as downstream integration decisions must be based upon

[119] Rappaport (1981) also emphasises this point (see pp.100-134)

customer orientation issues. It is difficult to see how such necessary market orientation objectives might be achieved without downstream integration at some level.

This becomes increasingly important precisely because the basic economics of running a business are changing. Carefully applied, Internet technologies can greatly reduce transaction costs. Here, in one respect at least, we see a direct link with historic business management techniques. The focus on the reduction of transaction costs has been the principle driver shaping companies over the past century. Indeed, in his seminal paper, *"The Nature of the Firm"*, Coase (1937) asks, if the market's success is striking bargains and setting prices, then, why does it not dominate all economic activity? If this were the case then each firm at each stage of the supply chain would operate as a single profit centre. Coase suggests that the reason this does not occur is *'imperfect information'*. The cost of searching for the right partner, the right deal, of negotiating the right contract terms and of co-ordination processes such as producing and marketing means that transaction costs can sometimes best be reduced through the development of long-term relationships. The more a company pursues a succession of short-term contracts, the higher these costs may be. This concept is now widely adopted as an explanation for the impact of changing technology on corporate boundaries (*c.f.* Cairncross, 2002).

Technology is allowing the development of long-term relationships that treat decision making and inter-firm agreements as if they were part of an internal process, thus reducing transaction costs for both parties (*c.f.* Williamson, 1975). But the benefits of long-term relationships reach much further than this. As knowledge becomes more important companies become increasingly dependent on the complex human skills and the ingenuity of their people (their employees and their strategic partner's employees). People and their knowledge therefore become a primary source of competitive advantage. Adapting to these new economics is an immensely difficult task and requires an holistic approach at corporate and business unit levels.

Harrigan's (1984) observation of the need for an holistic approach to supply chain configuration is not outdated, but the context in which she writes has changed dramatically. As we have seen through the examples of our cases, the impact of

technology and the global embracing of e-commerce are forcing strategists to re-think supply chain configuration.

It is apparent that most industries only have room for a tiny number of large-scale, low-cost producers. Beyond this firms must find ways of preserving margins, differentiating the product through their relationships with the customers (*c.f.* Porter, 1985). Internet technologies provide tools for doing just that. Their greatest value is the scope they offer for understanding the customer and for developing customer loyalty, either to a brand or to a company. Valuable customers can be identified and offered more targeted products. This has implications for corporate structure and the resultant supply chain. Cairncross (2002) believes that companies will become more heterogeneous despite the increasing trend towards central power over standards and systems.

In future company structures will be more flexible and fluid. Cairncross uses the analogy of Lego blocks that can be assembled, disassembled and reassembled indefinitely. The trick will be the managing of this balance between centralisation and decentralisation whilst the core of the structure will have the tenet of the free flow of information and knowledge between communities, teams, divisions and companies. Firms will more and more design their organisation's architecture around customer segments rather than business functions thus creating a demand chain pull instead of a supply chain push. Ultimately the assemblers and co-ordinators of business processes will play a different role from those we know today. Their strengths will lie in their ability to assemble projects quickly and easily, making use of flexible franchise, alliance and outsourcing agreements. They must capitalise on co-ordination skills and maximise the opportunities that technologies present. They must nurture and build strong brands and perhaps most importantly of all, they need to attract and retain the right people for achieving this. It is the impact of technology that is a considerable contributor to this drive for change.

8.1.5 The Impact of Technology

Technology was observed to be having a fundamental impact on the supply chain configurations being adopted. Not only is technology capable of removing supply chain stages that had previously been considered essential, it is also revolutionising the definition of inter-firm relationships. Technology is fashioning influence through information share, creating borderless networks of individuals (*c.f.* Hammer, 2001; Sawhney & Parikh, 2001). As we have seen through the example of Rolls-Royce, the employers of these individuals become incidental as supply chain partners work towards common goals.

Table 8.2 below summarises the use and effect of co-ordination technology on the supply chain approaches found within the firms studied. These cases include firms that adopted combinations of transactional relationships, influence and ownership within their supply chain configuration. As can be seen from the table this perspective is morphing influence and ownership into virtually indistinguishable approaches to integration (*c.f.* Mahoney, 1992). This has important implications for managers. If this is really the case, then a manager's ultimate concern should be the implication each approach has on market orientation and long-term and short-term business performance.

Table 8.2 Integration typologies and co-ordination technology within the supply chain.

	Transactional	*Influence*	*Ownership*
Basis of Interaction	Discrete exchange of goods, services, payments (simple buyer/seller exchange)	Shared goals and processes (e.g. collaborative product development)	Shared goals and processes between SBU's (e.g. collaborative product development)
Duration of Interaction	Immediate	Long-term, defined by relationship	Permanent
Level of Integration	Low	High	High
Co-ordination & Control	Supply and demand	Inter-firm structures, processes and systems; mutual adjustment	Inter-SBU structures, processes and systems; mutual adjustment
Information Flows	Primarily one way; limited in scope and amount; low level of customisation	Two-way (interactive); extensive detailed exchange of information, dynamic, customisable.	Two-way (interactive); extensive detailed exchange of information, dynamic, customisable.

As described in Chapters 6 and 7, our firms adopted various levels of co-ordination technology from the full implementation of SAP,[120] MRP,[121] EDI[122] and database-controlled direct marketing programmes (e.g. Kellogg, Tesco, Cadbury), to the simplistic use of e-mail as an instant form of communication (Essant, Trupart). Yet the rapid adoption of co-ordination technology can easily be seen far beyond the examples of our cases. In the six years between 1994 (the launch of the Internet browsers and the public embracing of the Internet) and 2000, advertising spend on the World Wide Web grew from zero to almost $8 billion. Though still barely 3% of all UK advertising on print, television and radio, it seems fair to conclude that a new advertising medium has been born (Pereira, 2001). The web is a versatile medium, suitable for direct marketing, for retailing and distribution, for the delivery of service and information products, for marketing research and even for posting and testing prices (*c.f.* Earl & Khan, 2001; Feeny, 2001; Ragan & Adner, 2001). Pereira (2001) describes the web as a *'comprehensive marketing environment'*.

Before computer networks emerged, full financial ownership was the most economical way to co-ordinate and control supply chain activities, bringing them within the confines of the firm. The empirical evidence of the successes of electronic commerce presented in this thesis, demonstrates how firms can use electronic links to integrate, co-ordinate and control (or *'influence'*) the supply chain and perhaps more crucially the value chains across organisational boundaries. These developments mean that business decisions can be made on the basic business principles; the questions of cost and of technical feasibility matter less and less.

We have discussed the isomorphic nature of ownership and influence in supply chain configuration strategy.[123] We have presented evidence that suggests ownership and influence are isomorphic in the sense that they can both be applied to achieve business success. However, we have also seen how the contingent nature of each strategy might leverage performance and how this is dependent on numerous factors (e.g. number of suppliers, nature of product/services purchased, core competency of each firm etc.). Furthermore, the nature of the management skills required to successfully

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[120] Software Application Programmes
[121] Materials Requirement Planning
[122] Electronic Data Interchange

implement these two distinct strategies is very different. In this sense ownership and influence do not appear to be isomorphic and it remains the responsibility of senior managers to identify and implement the most appropriate course of action.[124] Whilst the global business environment suggests de-integration through influence strategies, such an approach may only succeed when other market opportunities exist, for example the availability of appropriate and affordable information technology.

We have seen how the increasingly sophisticated information systems are enabling firms to reduce the cost and risk of co-ordinating and controlling value chain activities with other supply chain members. It becomes apparent that the rules for determining which activities to own and which to outsource increasingly favour the latter – vertical de-integration appears to be an irreversible trend. The availability of the Internet as a low-cost, flexible, easy-to-use and widely available platform for electronic commerce continues to fuel this trend (Doyle, 2000; Langaeer & Rose, 2001; Pereira, 2001). As firms contract out more and more non-core activities, we observe increasing specialisation within industries, as *'specialists'* become the real experts, replacing vertically integrated generalists. This allows firms to take advantage of new opportunities through collaborative ventures such as strategic alliances, new and increasingly flexible forms of franchising and outsourcing agreements. Perhaps the most drastic example of this has been Clarks shoes, shifting their core competence from manufacture to retail (Chapter 6, p.189).

The question arises as to whether firms can develop specialisation around a core competency, whilst maintaining seamless integration with other supply chain members and thus achieving end-to-end control of the value chain. This paradox lies at the heart of the future of electronic commerce. As Pereira (2001) observes, increased specialisation leads to increased power within a more limited sphere. Despite this unbundling of goods and services experts in each field, e.g. manufacture, wholesale, retail, must unite to form the *'super supply chain'* sought by market leaders. They must act as one, in order to deliver product offerings to a more demanding global customer base (Earl & Khan, 2001). The incisive role of competence in the management of complex inter-firm relationships required to co-

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[123] Chapter 2, pp.47-49 and Chapter 8, p.321.
[124] See Section 8.2 Managerial Implications

ordinate and control entire supply chains becomes apparent. Our successful firms are those that have become high-quality providers of core activities: Day (2000) refers to '*hybrid*' relationships, which include elements of partnership agreements, contracts and transactions, information share and integrated processes that enable end-to-end co-ordination and control of the value chain (*c.f.* Powell, 1987).

The connectivity, flexibility and power of the tools available on the Internet provide an excellent platform for delivering interactive real-time information both inside and outside the firm. But taken alone, they are insufficient. The Internet's power must be integrated with the internal database networks and transaction processing systems within each firm that unites to deliver value-chain activities. This is a truly mammoth task and the challenges it presents must not be underestimated. Clayton & Overdorf (2000) describe the power of these technologies as '*disruptive*'. Doyle (2000) comments,

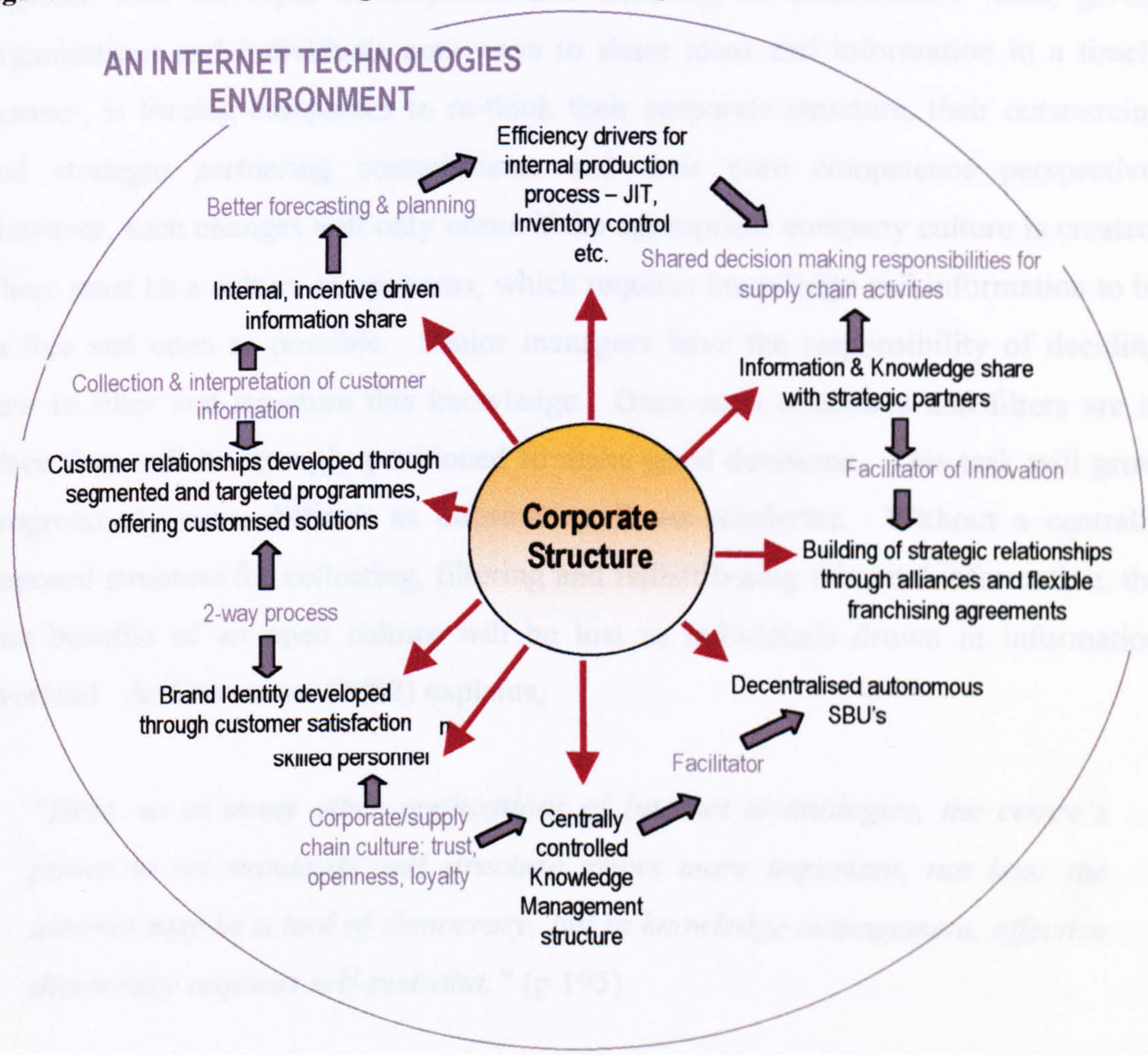
> *"The Internet is not an innovation that can be adapted to simply by improving efficiency of the traditional business model or by adding a web site....* [the Internet] *destroys previously successful business models."* (p.353)

Our high performance firms were found to be enthusiastically embracing this brave new world of information superhighways. Whilst some firms are trying to appear radical in their approach to supply chains, progress is generally slow and the decision to abandon old and previously successful business models does not come easily. Perhaps we have to look to new organisations, new joint ventures and co-operative agreements such as Silicon Systems and Beta, to offer and practice these new demand-driven business models before others can be persuaded to follow suit. After all, high performance firms have much to lose. However, if they are too slow to change they surely will lose. Perhaps further research could investigate firm history and legacy systems to see how older firms differ from younger ones in their ability to adopt these new business models. Our research has raised the issues regarding the difficulties associated with overcoming legacy systems. Such issues are thought likely to impede managerial 'vision'. These findings have important implications for managers.

8.2 Managerial Implications

As we have seen, Internet technologies are facilitating the physical shortening and hierarchical flattening of supply chains. But in other respects supply chains are expanding, developing the provision of complete service over the whole life-cycle of increasingly mass-customised products, conducted in the environment of e-business. It is in this arena the businesses must take on board the responsibility for their own future. Our study has described the impact that Internet technologies are having on the way businesses are adapting and developing in today's disruptive and turbulent business environment. A summary of this description is illustrated in Figure 8.2.

Figure 8.2 What an Internet Organisation Might Encompass



Through the pursuit of market orientation, in an attempt to leverage business performance, firms are evolving their supply chain configuration. This in turn is changing the way the managers structure and manage their own corporation. Our

research findings have seven principle implications for managers. We suggest that the Internet environment will change the way firms manage, 1) knowledge, 2) information technology, 3) purchasing and strategic sourcing, 4) customers and brands, 5) their people, 6) the corporate and supply chain structures – which become inextricably linked and 7) the leadership of these new organisations and supply networks.

8.2.1 Knowledge Management & Decision Making

As we have seen, the extraordinary fall in the cost of communicating knowledge and information is changing the role and importance of knowledge management. This, together with the rapid development and adopting of collaborative tools, giving organisations and individuals new ways to share ideas and information in a timely manner, is forcing companies to re-think their corporate structure, their outsourcing and strategic partnering commitments and their core competence perspective. However, such changes will only ensue if the appropriate company culture is created. There must be a culture of openness, which requires knowledge and information to be as free and open as possible. Senior managers have the responsibility of deciding how to filter and structure this knowledge. Once such structures and filters are in place they will be strongly positioned to make good decisions. This task will grow progressively more difficult as information flows accelerate. Without a centrally imposed structure for collecting, filtering and redistributing this vital information, the true benefits of an open culture will be lost as individuals drown in information overload. As Cairncross (2002) explains,

> *"Here, as in many other applications of Internet technologies, the centre's power to set standards and structure grows more important, not less: the internet may be a tool of democracy, but in knowledge management, effective democracy requires self-restraint."* (p.195)

It will take time for companies to integrate all their corporate operations electronically, but as they do so they will gain important advantages. Managers will have a clearer, more timely view of the state of their business. Consequently they will be in a much stronger position to reduce their response time to changing market

conditions. Furthermore, by selectively making some of this corporate information publicly available, customers, investors and regulators will receive fewer nasty surprises.

Tools as powerful as the Internet technologies offer enormous potential for improving management. The rapid identification of problems (potential or actual), the ability to *'drill down'* and review productivity on a weekly basis by product, by region or by customer segment all contribute to a stronger platform from which to make business decisions. This should aid forecasting, planning and capacity decisions.

8.2.2 Information Technology

As Michael Porter (1985) famously observed,

> *"There are no low-technology industries, only low-technology companies: companies that have not yet woken up to the potential of technology to transform what they do"*

The UK has an impressive history of invention and scientific endeavour but there is an increasing sense of trading off a past legacy that no longer truly exists. Firms must apply and maintain innovation, which can be very successfully fostered through inter-firm relationships and strategic partnering, in order to succeed in tomorrow's increasingly high-tech world. Three principle directions in which technology should be embraced stand out as milestones for businesses:

- Firms not only need to understand the configurations of their supply chains but how they can develop and apply the tools and web-based applications to enable real time modelling and decision making inside a company that can enable and facilitate customers and suppliers within the supply chain. The low cost, flexibility, shared ownership and global connectivity of the Internet dramatically expand opportunities for electronic commerce.

- Technologies that enable the more effective and intelligent use of physical logistics infrastructure – by air, road and rail – to enhance customer service and reduce distribution costs.

- Agile, lean and remote manufacturing technologies and systems greatly increase added value in manufacturing processes, drive out waste and at the same time enable mass customisation of *'manufacturing to a unit of one'*. But how can managers deal with a commodity market that simultaneously demands customisation? The answer may lie in the ability of the firm to harness the power of digital information. For example, information can be used to create new products and services or to add value to existing ones. Physical products and services can be infused with added value by the addition of information or new products/services created from data collected in the course of doing business. Further, data is reusable. It can be sold without the transferring of ownership and without being consumed. It is also highly customisable; the same information can be presented in different forms (e.g. text, graphics, video, audio) and at varying levels of detail. It can be combined with information from other sources to communicate different messages and to create new products and services. Finally, as the speed of business accelerates, the time value of information increases, offering further competitive advantage to businesses that can master its management.[125]

One of the primary reasons behind the success of the new Internet technologies is that they easily dovetail into the way companies currently organise themselves. They are reinforcing trends that are already underway. Proprietary electronic networks have long allowed large companies to do what smaller firms can now emulate. As the true potential of the Internet dawns on managers, they can begin to see new ways of maximising their business performance by utilising its facilities to better serve their customers. The main revolution of the Internet will, therefore, involve the enabling of

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[125] It is recognised that technological speed and multiple sources are not the only requirements for virtual integration. It is important that managers do not underestimate the problems associated with speedy integration, for example: identification of the most appropriate technology; cultural and political issues associated with inter and intra-firm relations; resources and expertise required for implementation; speed of change within the micro and macro economic environment. These are all areas worthy of future research. However, the point we make here is that the use of speed and multiple sources offer opportunities to develop key competitive advantages.

established businesses to do familiar tasks in new ways and then new tasks that can be completed thus in familiar ways. It is difficult to know whether or not such improvements will lever profitability, but they will almost certainly raise productivity and sharpen competition. This suggests that companies have no choice over whether they embrace co-ordination technologies. Without this extra scope through which they can redefine their business in a more efficient way, companies might quickly lose their competitive edge.

8.2.3 Purchasing & Strategic Sourcing Opportunities

Gaining a better understanding of how and where value added can be created within a supply chain suggests the need for strong inter-firm relationships between supply chain members. This said, it should be noted that not every customer and supplier needs to be a strategic partner. Understanding which supply chain members are to be strategic partners and which are transactional is a difficult and important choice. Manufacturers supplying customers in the upper tiers of supply chains need to actively seek to differentiate their offerings in a way that helps them become a strategic part of their customers' business.

Where purchasing of indirect materials occur, a new, electronic business model is emerging. This electronic exchange, despite taking numerous forms, is converging around a single standard, which in future will facilitate the communications between different industries and different companies within the same industry. They will thus be able to transact freely with one another. Such opportunities underline the relevance and importance of centrally determined standards. These standards have connotations for internal purchasing and for inter-firm relationships.

Perhaps the most striking implication of Internet technologies in this context, is their impact on the management of supplier networks. Here, Internet technologies facilitate the simultaneous redistribution of information to many different points within the network. Cairncross (2002) refers to this transformation of the supply chain as, *'the evolution of an ecosystem'*, bringing the greatest rewards to modularised production processes, so that different supply chain stages that were once carried out sequentially can now take place simultaneously. This has the effect of speeding up

production, reducing output and increasing the flexibility with which companies respond to the fickle customer.

Managers need to recognise the dynamic nature of the inter-firm relationships they build (*c.f.* Lemon, White & Russell, 2002). Partnerships will change over time: the same customer may see a manufacturer as strategic for some products and transactional for others. Equally, a supplier may provide some bespoke products and services that cannot be found elsewhere and at the same time deliver off-the-shelf products. These complexities require constant attention and monitoring. Marrying an understanding of dynamic markets through the constant scanning of regional and global patterns, with the identification and management of world-class customer and supplier partners provides increased opportunities for business success.

Whether through strategic alliances, partnerships, franchising or direct purchasing, the current trend towards outsourcing is set to continue as firms seek to focus on their core competencies. Now that the Internet reduces the cost burden that has traditionally dictated the structure of a firm and its supply chain, companies can make decisions about whether to outsource purely on the basis of the business case in hand. But managers must be warned, outsourcing has drawbacks – companies need to retain control over their quality of service and brand reputation.

As Internet technologies reinforce the current inclination towards outsourcing, we will likely witness the further reduction of inventory as firms pursue the long established trend of just-in-time led production practices (*c.f.* Womack, Jones & Roos, 1991). As geography matters less with the capabilities of the Internet, this is likely to bolster globalisation, allowing companies to manage overseas operations and connect with foreign suppliers in more complex ways. These practices will bring the customer directly into focus in an attempt to better deliver what the customer wants. In turn this should enable flat structures for modern businesses, that will be able to operate more effectively and flexibly.

8.2.4 Customer Relationships & Brand Management

Internet technologies are beginning to give companies a new sense of control over their relationships with customers. The Internet allows firms to both widen and deepen such relationships, reaching across new markets and learning more about what individual customers need and want. To achieve this, firms will have to work hard at developing a culture of trust. If they do not, customers will simply prevent companies from collecting the detailed information they desperately need to help them create timely, valuable and innovative solutions. As companies develop more sophisticated tools for identifying the most profitable customers, such exercises can be targeted to retain and cross sell to the most lucrative markets. The Internet can be used to bolster brand value and create customer loyalty. Whilst the basic market orientation principles remain unchanged, Internet technologies increasingly offer effective and efficient tools to age-old marketing problems.

8.2.5 People Power

Given that creativity and new ideas are generated by people and not computers, the recruiting, training and retaining of the right staff is an important consideration. With the dynamic nature of supply chain configuration and inter-firm relationships, a flexible and skilled workforce will become an increasingly important dimension of a firm's operations. Individuals will require radical updating of their skills several times during their working life – new technologies will most likely have the maximum impact on these requirements. Businesses will not only need to improve the overall level of education and training of employees but must manage and foster a workforce with generic learning skills to update knowledge and direction quickly. Cairncross (2002) explains that acquisition costs will encourage companies to care about retention, because profits per employee take time to accrue. Identifying and investing in talented and inventive people to implement the new business models of the twenty-first century will be an important and challenging ingredient of success.

8.2.6 Corporate Structure & Supply Chain Configuration

To encompass this e-future, businesses need to deepen and broaden their sphere of strategic consideration. An enterprise, its customers and its suppliers together form a value chain, which must be ready and able to compete for the attention of consumers. Thus all companies in the value chain should view the whole supply chain or as Langabeer & Rose (2001) label it - the demand chain - from the perspective of the final customer. The principle driver of the demand chain is enhanced profitability through customer satisfaction. This means firms must understand and forecast the products/services customers are looking for, the locations in which they expect/need to find them, the appropriate positioning of inventory, the ability to balance supply with demand and ultimately to stimulate greater demand. For example, the right price to achieve the desired sales volume, the right promotions to improve sales volumes. These fundamental principles of marketing apply to all companies of all sizes. The re-configured supply chain must endeavour to encompass all functions that together generate and service customer needs connected with the manufactured product. As we saw with the Rolls-Royce example, maintenance, finance, logistics, data management and R&D are all part of the same supply chain configuration and regardless of the in-house or outsourced positioning of activities, a seamless network operates towards common goals. Instead of being perceived as:

> *"A network of autonomous or semi-autonomous business entities collectively responsible for procurement, manufacturing, and distribution activities associated with one or more families of related products."* (Swaminathan *et al.*, 1996)

The supply chain becomes interpreted by managers as,

> *"A complex web of business processes and activities that help firms understand, manage, and ultimately create consumer demand,"* (Langabeer & Rose, 2001, p.6)

This requires managers to develop and implement demand management skills; to analyse and understand overall demand for markets within the firm's current and

potential product range. These new supply chains encompass forecasting, market research, business intelligence and strategic planning capabilities. In line with the work of Niraj, Gupta & Narasimhan (2001) firms must focus on predicting which product markets are the most viable, given current manufacturing, logistical, financial and intellectual resources available. Such a comprehensive understanding of consumer demand will help to improve the agility of the firm to respond to continual demand pattern changes over time.

Businesses need to identify and continuously assess and reassess their core competencies; their core strengths and weaknesses. These need to be benchmarked against global competition standards. Only once core competencies have been identified can firms plan their strategic sourcing needs, identify which components are commodities, which are integral to the product/service offering and what added value this creates. Thus decisions regarding core competencies fundamentally affect the supply chain configuration.

The escalating demand for increased efficiency within organisations is resulting in significant focus on the total cost of owning and operating equipment rather than the capital costs. This is already driving a completely different way of thinking about requirements, and whilst there is still some way to go before there is complete acceptance of long-term affordability being more important than initial costs, the issue will be a critical driver for the foreseeable future. This has implications both upstream and downstream of the supply chain, affecting configuration through outsourcing decisions and helping firms identify core competencies through building an understanding of what creates value for customers.

8.2.7 Leadership

Leaders are required to drive this key change in supply chain configuration. To implement these new business models, managers must be able to put into place the appropriate structures and culture. This will require skilful leadership. Leaders must develop skills that allow them to manage disruptive and continuous change. They must be able to see their way through a torrent of new data; interpreting, filtering and distributing it in standardised, user-friendly formats to appropriate network members.

As the network expands, as customers and suppliers become increasingly integrated, the role of communication, both with the outside world and with their own people, will become increasingly important. The new visibility this integrated network creates will open an organisation too much unsolicited commentary, as stakeholders become amateur managers.

Company boards and shareholders need to recognise that the desired returns on investments will not always be short-term. The increasingly short-term perspective of stakeholders is perhaps reflected in the UK's research and development (R&D) spend which is only 1.9% of GDP[126]. R&D is often seen as an area where expenditure can be cut without immediate apparent harm. An emphasis on short-term returns has lowered the perceived value of the wealth development opportunities for the long-term. Perhaps the increased visibility the Internet offers to shareholders will help them appreciate the bigger picture. Alternatively it may make them increasingly active.
All of the above managerial implications may be further expanded and investigated in future research. The next section analyses the study limitations and proposes avenues for future research.

8.3 Limitations & Future Research

This study represents a preliminary advance into an understanding of supply chain integration approaches with regard to their effect on market orientation and business performance outcomes. Further, the study identifies some determinants of supply chain configuration. As such its findings have general limitations. Yet, as an innovative study in this area, the findings create opportunities for future research. The following section identifies some of the study's limitations and suggests avenues for future work that will enable researchers to gain a better understanding of the realm of supply chain configuration.

The research limitations may be classified into two areas: 1) case selection and quantitative approach; 2) measurement and research framework.

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[126] This is near the bottom of the scorecard of industrialised nations' R&D spend. (Foresight, 2000).

8.3.1 Case Selection & Quantitative Approach

Potential epistemological limitations arise from the case selection process adopted in this empirical study. The matched pairs approach was adopted to facilitate the investigation of patterns of supply chain configurations associated with strong market orientation behaviours and high levels of business performance. Adopting a matched pairs approach allowed us to look at a subset of outliers (high performers) that might reveal patterns of behaviour that differentiated them from their control group in some significant ways on our key constructs. However, this presented three key methodology issues; 1) the case selection process for the identification of *'high performers'* relied on subjective methods, 2) the selection of the control sample was problematic, and 3) the number of cases in the sample was necessarily limited to forty companies. We now examine the limitations imposed by these issues in turn.

The Identification of High Performers. As part of the case selection procedure, this study uses external, published financial data of company performance as an indicator of their superior business performance. Chapter 5, Section 5.2.6 discusses some of the limitations of published data and the steps taken to alleviate some of the inherent potential bias. However, a more critical concern is that the performance figures are not based on business unit performance but rather on corporate performance. This creates an inconsistency, as our unit of analysis is the business unit and not the corporation. Once high performance firms had been identified, we had to rely on company contacts to steer us in the right direction of high performing business units. Whilst methodologically flawed, practically this proved relatively unproblematic, as corporations were eager to demonstrate their most efficient and effective business units.

The Identification of the Control Sample. Once high performer cases had been identified and recruited as participants they were asked to identify a poor performing competitor. This method of identifying the control group is known as the snowball effect. However, using a snowball effect to identify our control sample (the low performers) meant these firms were also eager to steer us towards high performing business units and did not always want to discuss the issues associated with their poor performing business units. This procedure is thought to be responsible for some of

the anomalies reported in the empirical findings. Future research should focus on developing better performance measures.

Secondly, the difficulty in recruiting a low performing competitor as the control for each high performer was challenging. Whilst all companies in our control group were competitors of their matched pair at the business unit level, the issue of the corporation and corporate structure was frequently raised. Low performing business units were sometimes part of a corporation that, in other market sectors was performing exceedingly well. They, therefore, could conceivably have adopted supply chain practices by implementing best practice developed through sister SBU's. For example, Schering Health is a successful company but because of its poor performance in the contraceptive pill sector, they were selected as the low performance partner for Wyeth Brothers – the market leader in this sector (p.209). Future research should focus on developing an understanding of the interaction between corporate and business unit level supply chains.[127] Our research focused purely on the business unit level but if end-to-end control of the value chain is to be achieved, as Hammer (2001) suggests, the interaction between corporation and business unit supply chains becomes a vital antecedent of market orientation in creating leverage for business performance.

Number of Cases. Constraints of the PhD programme dictated certain limitations (time, finance, and length of thesis). Consequently, from a quantitative perspective, only a small number of cases could be investigated. Whilst every effort was made to maximise the number of cases, using only forty cases meant limitations regarding the data analysis and interpretation of results. The exploratory factor analysis could only feasibly be applied in a confirmatory manner and the multi-dimensional nature of the supply chain configuration construct, and more particularly influence as a method of integration was limited. This raises measurement issues. However, the results are promising and suggest that the measures used deserve further development and validation.

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[127] The question here is concerned with corporate ownership effects. It is worth noting that some researchers would argue these are relatively small (*c.f.* Rumelt, 1982).

8.3.2 Measurement & Research Framework

In terms of measurement, the research involved further testing of scales in a new context. The scale for influence was developed as a multi-dimensional construct from existing scales. However, due to constraints of sample size, the new scale requires additional testing, possibly applying it to other samples to enhance its validity. The influence scale would benefit from testing in a large, simple random sample which might further underline the qualitative findings in this study. Notwithstanding this, all measurements included in the analysis were thoroughly tested prior to the implementation of the survey. The scales were assessed for reliability and validity throughout the questionnaire development process (Chapter 3). All of the measures resulted from existing scales used in the literature. Furthermore, during the analysis, the validity and reliability of the measurements were assessed (Chapter 7).

Sample size imposed a second limitation. Some of the market orientation literature suggested that market orientation might be modelled as a possible moderating/mediating effect between supply chain configuration and business performance. The sample size and design prevented the testing of our constructs in this fashion. To complicate matters further, the causal relationships suggested by the traditional quantitative approach became far less certain when the qualitative data was considered. Whilst this study does use predictive techniques associated with supply chain configuration, market orientation and business performance, the only statistically significant result was presented by the market orientation/business performance relationship – a thoroughly tested relationship. For this reason our study avoids the positing of causal relationships wherever possible and refers to the association between the constructs. The modelling and testing of possible causal relationships between market orientation and supply chain configuration requires further investigation.

Another limitation of the study is that it provides an overall assessment of the relationships, regardless of the demographics. For example, business unit size and form of ownership were not included in the framework even though some interpretations of the qualitative data suggest that these dimensions may affect the ability of a firm to develop certain supply chain configurations and adopt market

orientation behaviours. Consequently, future research should take into account the potential moderating effect of these variables.

The research examines the determinants of supply chain configuration without regard for internal business dimensions. For example, it would be interesting to assess how corporate culture and internal politics influence supply chain configuration.

The following section considers avenues for future research taking into account the limitations of this research.

8.3.3 Future Research

The study focused on supply chain configuration and its relationship with market orientation and business performance. It opens numerous potential routes for future research. These may be grouped according to four themes: 1) measurement and study validation, 2) incorporation of business variables; 3) incorporation of internal environment variables; 4) other tracks.

8.3.3.1 Measurement & Study Validation

The scales used in the research require further validity testing. As Churchill *et al.* (1974) explain, the validation of measurements is a continuous process and can never be *'proven beyond all doubt'*. Babin *et al.* (2000) underline this point observing that validity should be approached as a matter of degree rather than in absolute terms. This research proposed a tentative measure of influence as a method of integration. Further application of this measurement is needed in future research. A structural equation modelling approach might provide a better understanding of the multi-dimensional nature of this construct. In addition, several other constructs and measurements were proposed within the supply chain context. Supply chain researchers could explore these measures further. The descriptive nature of this research encourages its replication and extension to attain greater validity and generalisability for the measurements and relationships. Further, the emphasis placed on the impact of globalisation at the beginning of this thesis (Chapter 1, Section 1.2.1) suggests the indiscriminate international nature of supply chains. The influence scale

and its relationships with market orientation and business performance dimensions should, therefore, be extended to other cultures and countries.

Although the results of this study generally support the conceptual framework developed in Chapter 4, several specific findings are open to interpretation. In particular, it was hypothesised that the supply chain configuration adopted was associated with the level of market orientation achieved. The results were partially supported, but further study is needed to fully understand why. A more in-depth qualitative approach to this relationship might reveal the underlying mechanisms and processes of this relationship.

This thesis has provided a snapshot of how firms organise their supply chain configuration. With regard to the influence concept (Chapter 4, Section 4.3), it would be beneficial to undertake a longitudinal study to investigate the enduring aspects identified, its management and business implications. Although the analysis indicates market orientation drives de-integration upstream and integration downstream and this in turn leads to superior business performance, the underlying mechanisms through which this is achieved are by no means clear. Studies adopting a more longitudinal focus are essential to understanding why some firms are better at developing and implementing influence than others. A search to understand the implementation of influence as a method of integration downstream is essentially in the search to understand the leverage of market orientation. Such studies will yield further insights into the exact nature of influence and how it develops and evolves within a firm and further, how it can be leveraged for superior business performance.

Influence is referred to fleetingly in the vertical integration literature, for example Harrigan (1986) recognises the importance of firms exploring the possibilities of quasi-integration (*c.f.* Blois, 1972). Indeed, many commentators have observed the increasing importance of inter-firm relationships with firms sometimes coming together for specific projects and then disbanding, while other collaborative ventures take on greater permanence (*c.f.* Powell, 1987; Day, 1995; Hammer, 2001). The communications revolution offers new opportunities to improve and sustain collaborative efforts and the management of intangible assets, but it also presents new challenges. Cairncross (2002) cites the example of Internet technologies. These

facilitate the spread and sharing of ideas but also allow ideas to move easily beyond company boundaries, creating the need to protect intellectual property and rights. Yet too much protection may stifle innovation – requiring a balance between openness and protection. This balance is an important consideration in the development of influence as a method for inter-firm integration. Our results show that firms are able to exert influence in relationships when they develop a relationship focus, strong inter-firm communications, channel leadership and channel power (Figures 7.1 and 7.2, pp.240 and 243). We posit these factors as dimensions of the *'influence'* construct and the exploratory factor analysis went some way towards supporting this.[128] The sample size suggests these results require further validation.[129]

Exploring the dimensions of influence highlights the role of knowledge and its management within the firm and offers an important arena for future research. One useful definition of knowledge management is,

> *"...the efficient connecting of those who know with those who need to know and converting personal knowledge into organisational knowledge."*
> (Cairncross, 2002, p.24)

Companies need to invest in knowledge and must understand the portfolio of tools required to manage it. Sveiby (1997) identifies three distinct forms of knowledge capital: 1) employee competence, 2) internal structure (e.g. patents, concepts and computer systems), 3) external structure (e.g. brands, trademarks, reputation and relationships with customers and suppliers. As Cairncross (2002) explains, the heart of managing knowledge and innovation will not be technology but managing human commitment and maximising the transfer from human knowledge to organisational knowledge. This requires influence within relationships and is an important area for future research. Our findings suggest that influence within the supply chain was

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[128] See Tables 7.5 to 7.17, Chapter 7.
[129] Despite this limitation to our ability to adopt these scales as a validated measure of influence, the said dimensions have been developed in accordance with the first steps of scale development procedure (*c.f.* Churchill, 1995). As such, they draw together cross-disciplinary work from five principle bodies of literature (Chapter 2) together with the knowledge and expertise of over thirty managers across six industries and ten businesses (Chapter 3).

generally part of a strategic partnering programme. For example, Cadbury developed tiered supplier systems, identified strategic partners and preferred suppliers. Then, corporate level guidelines provide parameters for good practice to enable firms to work closely with suppliers and capitalise on their core competencies, the objectives being to create further added value within the supply chain. This approach has important implications for the sharing of ideas within collaborative agreements, innovation and decision making, again an area ripe for further investigation.

The ability of a firm to understand and manage inter-firm relationships to their best advantage is driving strategic decisions behind supply chain configuration. Having identified a suitable strategic partner Clarks Shoes increasingly outsource supply chain stages that would have previously been considered core capabilities of the organisation. Satisfied in the belief that their influence over their strategic partners is sufficient, they have outsourced the manufacture of the majority of their shoes to an Indian shoe manufacturer. This has allowed them to reduce their fixed cost base whilst retaining control over quality and security of supply. Further, they have freed resources to concentrate their business efforts on understanding customer needs and delivering to customers in an appropriate and timely fashion. It should be noted that Clarks admit that such a venture would simply not have been possible even ten years ago. Technology allows the accurate and timely sharing of proprietary information. Their Indian manufacturer receives 3-D design specifications of a new shoe within hours of the UK based company agreeing to purchase the design and put the shoes on the shelves in the high street.

As the Clarks example illustrates, knowledge is becoming accessible in new ways and is easier to transfer and store. Expertise is becoming easier to locate and employees can collaborate more effectively. These new opportunities will benefit companies only if they can adapt their management skills and their corporate culture to take advantage of them. New technologies must reinforce, not replace, existing human patterns of knowledge management. As Cairncross (2002, p.26) explains,

"Technology is only half the answer; managerial ingenuity must do the rest."

However, technology does bring substantial benefits. The type of online collaboration seen between Clarks and its Indian supplier enormously reduces paperwork, limits the scope for errors and enables the companies to co-operate seamlessly. Tracking who has done what is essential in identifying expertise for the future and to avoid legal wrangles if problems should occur. This safeguard also helps to encourage the openness, trust and commitment that is absolutely vital when sharing valuable information and ideas.

Adopting an influence approach within collaborative agreements makes additional information available to aid firms in decision making. Information technology can improve the quality of decision making by accelerating access to information and enabling managers, regardless of their geographic location, to contact others quickly for advice. Equally it may bring people together in order to tackle the more difficult decisions. Clarks have collaborated with suppliers on the uptake of designs and material usage, which enables them to make safer decisions at trade fashion shows. This has brought two key benefits: time-to-market is being reduced and the likelihood of product success is increased (*c.f.* Hammer, 2001). Managers, however, must take care to filter information so that only appropriate and accurate information is available to the parties concerned. The continuous inflow of information can be bewildering. Managers need to be able to spot trends, identify and interpret relevant data as it is constantly being updated, knowing when new material provides grounds for reviewing decisions. Further research into this area is vital.

A particular consideration might be the inclusion of business culture and internal politics as drivers of both supply chain configuration and market orientation (*c.f.* Webster, 1992; Hooley *et al.*, 1999). This research suggests the role of managers is central to the successful implementation of supply chain configuration. Further, it became apparent throughout the interviews that managers played a significant role in management of supply chain relationships. Organisational culture and personal relationships have not been the focus of this study but it would be interesting to understand how they might relate to supply chain configuration and market orientation issues. Furthermore, they might well have important implications for the way in which firms are able to position themselves in the market-place, dependent on

the marketing capabilities they develop and invest (*c.f.* Hunt & Morgan, 1995; Hooley *et al.*, 1998).

8.3.3.2 Incorporating Business & Internal Environment Variables

The qualitative data collected for this research suggested that variables such as firm size, resources and ownership may affect a company's likelihood of undertaking certain supply chain configurations. Future research should attempt to take these variables into consideration. For example, Essant, a small privately owned firm, would have adopted a different supply chain configuration if it had greater resources available so to do (Chapter 6, pp.185-186).

Alternatively, researchers might wish to address how information technology capabilities might affect supply chain configuration and might leverage market orientation (Webster, 1992; Day, 1994). For example, the reported impact of technology on indirect and direct purchasing is an interesting area. The impact of co-ordination technology on the purchasing function[130] is significant and is influencing managers in their supply chain decisions upstream. Purchasing can deliver real and rapid savings through Internet application. Savings of this nature are something that managers from other departments, struggling to introduce Internet technologies into established firms, could not hope to show. Three ways in which these electronic opportunities are creating savings include (*c.f.* Hammer, 2001; Langabeer & Rose, 2001; Cairncross, 2002):

- Aggregating dispersed purchasing across the company and buying in bulk.
- Streamlining the whole purchasing process (saving on administrative & inventory costs).
- Seeking out new, low-cost sources of supply.

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[130] Whilst purchasing/procurement functions are often involved in the more sophisticated and in-depth relationships that firms develop, this second type of relationship (what we label influence) is distinguished by managers and is often referred to as *'strategic partnerships'* or *'strategic sourcing'* agreements.

In order to capitalise on these benefits a new approach to purchasing is needed. Structure needs to be imposed where currently there is none and a central discipline needs to be instigated where currently local autonomy rules. This is a recurring theme with the exploitation of the Internet. But precisely because electronic communications provide a framework around which the complex processing of purchasing can be organised (or *re-organised*), they offer tremendous opportunities for simplification. Our findings highlight why managers should take on board these e-commerce opportunities but further research in this area is needed.

The argument for pursuing e-commerce is therefore a compelling one. The central discipline required to introduce Internet technologies in this area imposes control on purchasing.[131] To implement such a system, organisations need to develop and impose central guidelines, setting rules where few currently exist. This can entail a challenging culture shift within a company. Equally, it may mean devolving some authority that local managers have not previously enjoyed. This point is made by Cairncross (2002), as she explains,

> *"Companies must rethink their sign-off systems on purchases. When terms and conditions have been negotiated in advance, a local manager can be given the power to approve sizeable transactions. So centrally determined standardisation in fact allows greater local empowerment."* (p.118)

Despite the many advantages of the Internet, it is an emerging technology, or at the very least its application is. As we have mentioned, to capitalise on its true benefits firms need to seek and impose a high degree of standardisation. This standardisation, as the EDI example illustrates, has to spread far beyond the boundaries of the firm, across supply chains and entire industries (*c.f.* Porter, 2001). As the EDI experience suggests, arriving at standardised solutions is an arduous task. This struggle is at the epicentre of attempts to build electronic exchanges. Yet, as Cairncross (2002) so pointedly suggests, without the development of common standards, the full benefits of Internet technologies to purchasers and suppliers will never materialise. This immensely complex centralised structure requires in-depth research.

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[131] For an example of how indirect purchasing might reap benefits from centralisation see the discussion on Rentokil Initial, Chapter 3, p.79.

One final issue should be raised. How do firms build and adapt to the new business models suggested by these interdependent networks of firms? Whilst more recently established firms such as Dell (*c.f.* Magretta, 1998) can create from scratch, short and direct sales structures, working closely with a limited number of high quality, integrated suppliers and customers in what they refer to as a *'triangular information partnership'*, the older longer established firms such as Ford, BAe and Tate & Lyle have the legacy of production-line-processes and privacy with which to contend. This makes their entry into the world of e-commerce and integrated supply networks a slow and difficult one. Cairncross (2002) predicts that the level of integration required with a few select suppliers, working intimately with manufacturers to innovate and create new and effective products through streamlined and efficient supply networks will, *"eventually turn a company inside out."* (p.149). Their intrusion through one another's boundaries will resemble cross-departmental co-ordination of days gone buy. But these webs of relationships will be manifest through the world-wide-web, using the Internet to proliferate inter-firm communications and knowledge sharing. These supply networks are set to grow as firms outsource all that is not central to their core competence. Such networks will require leaders. Like the queen on a chessboard, she must move not only up and down the supply chain, but also diagonally across the web, fostering dialogue with and between suppliers, manufacturers and customers. This will enable firms to achieve the competitive advantage they require in order to leverage their business performance. But many existing firms have much to loose by misunderstanding these new organisational forms and a longitudinal approach to the evolving nature of these firms is needed.

8.3.3.3 Other Research Tracks

The impact of co-ordination technologies has been recognised in this thesis. An understanding of the role of information technology (IT) as a platform and as a co-ordination tool is essential to both supply chain configuration and marketing (Webster, 1992; Day, 1994). It is therefore appropriate that researchers generate an understanding of IT capabilities within firms and how this capability might lead to superior business performance (Fronhlich & Westbrook, 2001). Future research could explore the underlying mechanisms through which this is achieved. Additional research is needed to identify the full chain of variables connecting IT to our

constructs. The notion of IT as an organisational capability itself needs more attention and a model for examining and classifying the IT capability of firms based on the quality of their IT resources and skills must be developed. Such a model can then be related to measures of market orientation and firm performance and in turn the specific IT resources and skills most strongly associated with superior business performance can be identified (Bharadwaj, 2000).

Furthermore, researchers might wish to address if a supply chain configuration should follow a specific evolutionary pattern dependent on firm history (Fronhlich & Westbrook, 2001); or if business life cycles (e.g. including new entrants as well as established businesses) impact on supply chain configuration; and the effect of geographic and psychic distance on supply chain configuration and its outcomes. These are all areas where future work could be undertaken.

This study did not include factors regarding the suitability of suppliers and customers as strategic partners. For the purpose of this research performance data was not collected on external suppliers and customers but would have provided additional insight into the effects of suppliers on supply chain relationships. Also factors influencing strategic partnerships (ownership of brand equity, firm size, firm equality, core competencies) should be considered, including a firm's commitment to resources for partners, reciprocal commitment and long-term relationships (Krause, 1999; Stanley & Wisner, 2001).

Finally, superior skills and resources are sources of competitive advantage (Day & Wensley, 1988; Hooley *et al.*, 2001; Cairncross, 2002). The literature suggests the efficient supply chain as a source of competitive advantage (Harrigan, 1986), but as Porter (2001) explains, IT is removing the sustainability of such advantages. Our research suggests that an efficient and effective supply chain (sometimes referred to as a demand chain) is more likely to be a sustainable competitive advantage. Future research should investigate this link further.

8.4 Summary

We began this research with the suspicion that the type of supply chain configuration a firm adopted was likely to be strongly associated with that firm's level of market orientation. Further, where market orientation level were found to be highest, the supply chain configuration adopted was most likely to included downstream integration (either through influence or ownership). We also suggested that this would leverage business performance. The opposite would also be true. In the process of exploring these issues we discovered weaknesses in the current theory explaining supply chain configuration. The level of complexity of a supply chain configuration and the multi-dimensional nature of inter-firm relationships, highlighted by the empirical research resulted in the presentation of an alternative framework.

The findings and conclusions presented in this chapter permitted us to extract general lessons, which have enriched the theoretical framework proposed. The main conclusions are derived from the fact that Internet technologies are dramatically improving the ability of a firm to both widen and deepen inter-firm relationships upstream and downstream of the supply chain in an attempt to satisfy their market orientation objectives. Through the availability of this low cost, ubiquitous platform, linear supply chains are transforming themselves into networks of closely aligned suppliers and buyers as they attempt to generate a customer focused approach to business. This highlights the continued importance of marketing capabilities as organisations strive to build sustainable competitive advantage.

The main contribution of this research is to the relationship marketing and vertical integration literature. The research identifies three methods of integration and nine resultant supply chain configurations. The most complex method of integration to understand was that of *influence*. To this end we developed a scale to measure the levels of *influence* in inter-firm relationships. By building a better understanding of *influence*, managers will be in a better position to institute the non-hierarchical, interdependent firm structures that will best serve the needs of the customer in the future. Through the identification and understanding of determinants and outcomes for different integration typologies, it has been possible to explore the managerial

implications that the various supply chain configuration approaches might entail. In conclusion, the facilities that Internet technologies offer to businesses place an obligation on them to rethink their business models. It is difficult to see how firms that do not embrace these opportunities will survive in the long-term.

APPENDIX ONE

Interview Guide

THE UNIVERSITY OF WARWICK

Interview Structure
Supply Chain Configuration Research

1. Can explain the journey of your key product, detailing what process it goes through and where/with whom these process take place. Start with the products raw material state and finishing when it reaches the end user or consumer.

2. Now clarify your position within the supply chain and your typical relationships upstream and downstream within your supply chain. Use the following as a guide to describe your firm's approach:
   - Transactional
   - Influence
   - Ownership

3. (Clarify) Does your firm typically aim to develop long-term inter-firm relationships?

4. Why?

5. How would you describe the dynamics of a successful inter-firm relationship? The following list should be used as a guide:
   - Building trust
   - Commitment
   - Co-operation
   - Channel leadership
   - Channel power
   - Information Technology

6. How do you think each of the following approaches to your **downstream** supply chain might affect your firm's market orientation?
   - Transactional
   - Influence
   - Ownership

7. How do you think each of the following approaches to your **downstream** supply chain might affect your firm's business performance?
   - Transactional
   - Influence
   - Ownership

8. How do you think each of the following approaches to your **upstream** supply chain might affect your firms market orientation?
   - ❑ Transactional
   - ❑ Influence
   - ❑ Ownership

9. How do you think each of the following approaches to your **upstream** supply chain might affect your firm's business performance?
   - ❑ Transactional
   - ❑ Influence
   - ❑ Ownership

10. Why do you think your business performance differs from … (that of your matched pair)?

11. Do you think your firm's approach to market orientation might affect the methods of integration upstream/downstream of your supply chain? If so, how?

12. Do you think your firm's business performance objectives are affected by the methods of integration upstream/downstream of you supply chain. If so, which objectives and how?

13. Why would you adopt any of the below approaches to the supply chain in any given circumstance?
   - ❑ Transactional
   - ❑ Influence
   - ❑ Ownership

Any other comments:

APPENDIX TWO

Sample Introductory Information and Letter
Main Study Questionnaire

To Whom It May Concern:
Cadbury Schweppes
Birmingham
West Midlands

WARWICK BUSINESS SCHOOL

Wednesday, November 10, 1999

Dear Anne-Marrie,

REQUEST FOR RESEARCH INTERVIEW: Market Orientation & The Supply Chain

Thank you for agreeing to provide support with regard to your company's participation in an exploratory interview for the above named research project. Please find below further details about the research and the role we would very much like you to play.

A growing trend over the past five years has seen many companies such as British Telecommunications, Nike and The Body Shop increasingly outsourcing business activities that where traditionally performed in-house. Understanding how to capitalise on the benefits that arise from such strategic action together with the development of an appropriate decision making framework for managers will help firms increase their business performance. This research project, developed at Warwick Business School, sets out to examine some of the UK's most progressive companies to see if a particular type of outsourcing can enable firms to increase their flexibility and thus enable them to respond more quickly to customer needs.

One Hour of Your Time

Cadburys has been identified as a key player in its industry sector and as such, I request an hour of your time to partake in an interview. The research project involves face to face interviews with a total of forty UK based firms. Participation in this research is voluntary, however your co-operation is vital to the success of this project. In return for your time you will be offered and exclusive summary report of findings.

More About this project

Attached is a two-page summary, which explains in more detail what the objectives are and why this subject is so important to managers. If you wish to know more please do not hesitate to call me on 01453 882214 or e-mail me on k.mason@wbs.warwick.ac.uk. I will call you this afternoon to see if it is possible to arrange an interview. Thank you in advance for your co-operation.

Yours sincerely,

K J Mason.

Katy J Mason

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OUTSOURCING AND MARKET ORIENTATION: HOW DO THEY IMPACT ON BUSINESS PERFORMANCE?

Katy Mason and Prof. Peter Doyle, Warwick University[1]

RESEARCH PROJECT SUMMARY

High performing companies such as Marks & Spencer, Dell and Nike have long been reported in the business press as having successful and long-term trading relationships with their supply chain partners (see Figure 1). The purpose of this research is to explore which supply chain activities should remain in-house and which should be outsourced, and further, how those activities that are outsourced should be managed. We are looking for empirical evidence to support the doctrine that good outsourcing increases a firm's market orientation and consequently its business performance. Good outsourcing, we suggest, creates a flexible and customer responsive firm structure. The question remains, *'what is good outsourcing?'*

Managers have long argued that good outsourcing relies on achieving the right balance between ownership (performing the activity in-house or owning an equity share

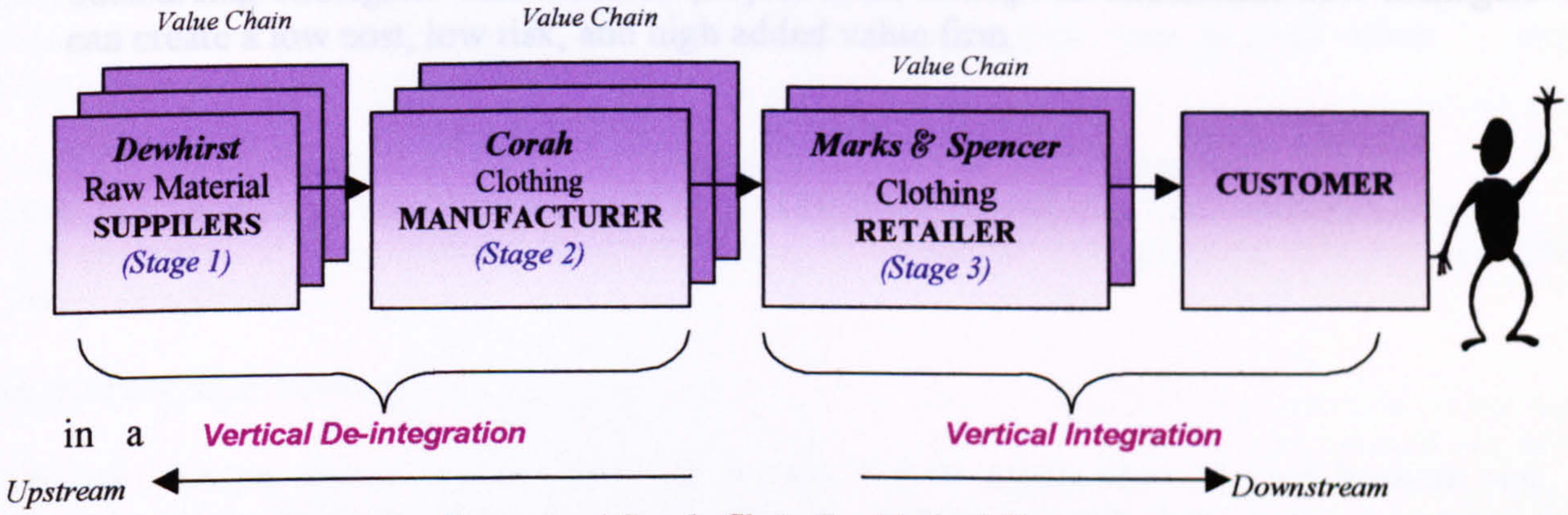

Figure 1. A Supply Chain For Marks & Spencer

firm that performs the activity on your behalf) and control (forming long-term relationships) of supply chain activities. In today's turbulent and competitive business environment an increasing number of firms are moving away from traditional, fully vertically integrated supply chains and are adopting vertical de-integrated forms, seeking control of the supply chain through the management of inter-firm relationships. For the purpose of this research, we define vertical integration as financial ownership of supply chain stages. The opposite of full vertical integration is a pure transactional relationship. A transactional relationship can be defined as the short-term contractual agreement between supply chain stages.

Based on the premise that a firm's objective is to capitalise on the cost and asset risk reduction advantages of transactional relationships but avoid the loss of control associated with not being vertically integrated, marketing practitioners and academics have emphasised the importance of building long-term relationships between suppliers and customers. We believe that Vertical De-integration is the organisational form that comprises the advantages of both vertical integration and transactional relationships by implementing control of the supply chain through a certain combination of ownership and

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relationship (outsourcing) strategies developed to improve business performance. Vertically De-integrated forms therefore lie on the control continuum somewhere between pure transaction and full vertical integration, seeking to control the supply chain through minimised ownership and maximised relationships.

The first stage of this research involves exploratory interviews with Managing, Marketing and Purchasing Directors at six firms. These interviews seek to identify the underlying principals of good outsourcing strategies and to explore their relationship with achieving a high market orientation and business performance.

The second stage of the research is the main survey and involves conducting forty semi-structured in-depth interviews with Managing, Marketing and Purchasing Directors at a sample of UK based firms. Therefore, data will be collected on four key areas:

1. ***Ownership of the supply chain activities***
2. ***Control of supply chain activities***
3. ***Market Orientation***
4. ***Business Performance***

The survey aims to contribute to the understanding of how firms can increase their market orientation and thus their business performance through improved outsourcing strategies. This research project is an attempt to understand how managers can create a low cost, low risk, and high added value firm.

THE UNIVERSITY OF WARWICK

Firm Structure and Market Orientation Survey

The purpose of this survey

This survey sets out to identify the reported trend towards outsourcing, whereby functions traditionally performed in-house are contracted out. It will enable us toThe clothing manufacturer Benetton is an example of this trend. Benetton subcontract the manufacture of their jumpers and franchise their chain of retail outlets. develop our understanding in three key areas, asking:

1. Are networks of interdependent firms truly becoming the norm in business practice?
2. How does the organisational form (i.e. its level of outsourcing) impact on a firm's market orientation?
3. Are any particular organisational forms more closely associated with increased business performance and market orientation?

Completing the survey

This survey asks you questions about your key product and its supply chain at your business unit. As this questionnaire will be distributed firms at different stages in a product's supply chain; it should be noted that not all questions will be applicable to your firm.

The data you report are confidential

No statistics that would divulge information obtained from this survey relating to any identifiable business will be published or released in any manner. The data reported on the survey questionnaire will be treated in strict confidence, used for statistical purposes and released in aggregate form only. There will be no facility to identify individual businesses as a result of publishing the statistical evidence.

Your participation is important

Participation in this survey is voluntary. However, your co-operation in completing the questionnaire is vital for the statistical analysis to be applied.

If you require assistance in the completion of the questionnaire or have any questions regarding the survey, please contact:

Katy Mason, Warwick Business School, Marketing & Strategic Management, Coventry CV4 7AL,
Tel: 01203 524691. Fax: 01203 524503. E-mail: k.mason@wbs.warwick.ac.uk

WARWICK BUSINESS SCHOOL

Research Into Firm Structure & Market Orientation

Section 1: Firm Background

Company Name: ..... Business Unit Name:.....

Year Established: ..... No. Of Employees: .....

Industry Sector:..... Your Position.....

What is your key product line?.....

Has the company seen any change of ownership in the past 10 years (please specify).....

.....

How long have you worked at the company?.....

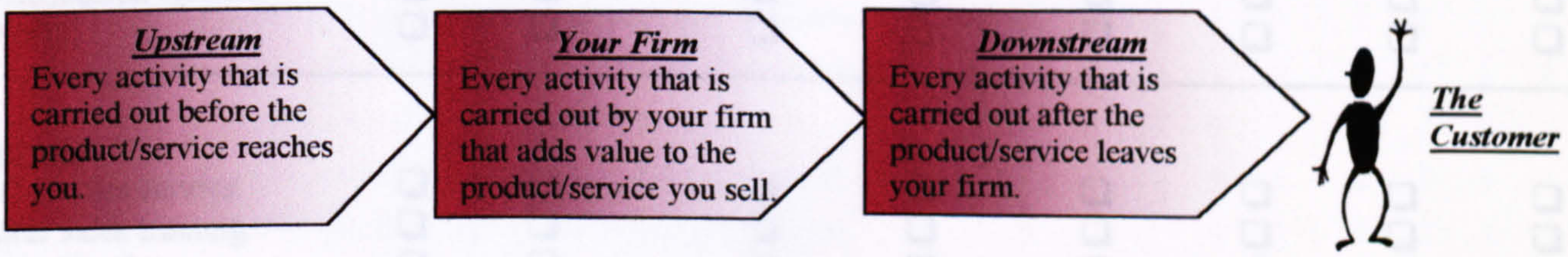
Is your organisation publicly listed?.....

Section 2: Your Firm's Structure

The instructions on the remainder of this page provide the context and guidance for the entire questionnaire. Please take 2 minutes to read them carefully.

Every product passes through a process that transforms it from a raw material state to a useable product for the customer. This chain of value adding activities, known as the *supply chain*, may be carried out by a single firm or by a number of independent firms.

Activities that are performed before the product reaches your firm are said to occur ***upstream*** of the supply chain. Activities that are performed after the product leaves your firm and before the product reaches the customer are said to occur ***downstream*** of the supply chain. This questionnaire investigates the ownership and control your firm has over its entire supply chain.



As we have said, activities can be carried out by your firm (**in-house (7)**) or contracted-out to be performed by independent firms. This is sometimes referred to as outsourcing. The degree of ownership and type of relationship between independent firms varies. Listed below are definitions of 6 key forms of outsourcing:

1. **Pure Transaction:** one off transaction.
2. **Repeat Transaction:** simple transaction – no collaboration or relationship building, infrequent.
3. **Long-term Relationship:** build co-operative relationship.
4. **Buyer-Seller Partnership:** high co-operation and collaboration. Mutual total dependency.
5. **Strategic Alliance:** part financial ownership, high commitment & collaboration. Inc. joint ventures.
6. **Network Organisation:** strong, dependent, open relationship, high trust, commitment, collaboration and Co-operation. Tries to create a virtual integrated supply chain.

Opposite is a list of activities regularly carried out in the processing of products and/or services.

Continued...

Thinking about your business unit, please indicate (✓) which of these activities are part of the **supply chain of your key product** and, referencing to the types of outsourcing described on the previous page, identify the level of relationship with each trading partner.

ACTIVITIES:	1 Pure Transaction	2 Repeat Transaction	3 Long-term Relationship	4 Buyer-seller Partnership	5 Strategic Alliance	6 Network Organisation	7 In-house	N/A
Stages of the Supply Chain								
Supply of Raw Materials	❑	❑	❑	❑	❑	❑	❑	❑
Manufacturer	❑	❑	❑	❑	❑	❑	❑	❑
Assembly	❑	❑	❑	❑	❑	❑	❑	❑
Wholesaler	❑	❑	❑	❑	❑	❑	❑	❑
Distribution	❑	❑	❑	❑	❑	❑	❑	❑
Retailer	❑	❑	❑	❑	❑	❑	❑	❑
Inbound Activities								
Warehousing	❑	❑	❑	❑	❑	❑	❑	❑
Inventory control	❑	❑	❑	❑	❑	❑	❑	❑
Research & Design	❑	❑	❑	❑	❑	❑	❑	❑
Assembly	❑	❑	❑	❑	❑	❑	❑	❑
Outbound Activities								
Distribution to buyers	❑	❑	❑	❑	❑	❑	❑	❑
Finished goods warehousing	❑	❑	❑	❑	❑	❑	❑	❑
Delivery vehicle control	❑	❑	❑	❑	❑	❑	❑	❑
Order processing and scheduling	❑	❑	❑	❑	❑	❑	❑	❑
Marketing & Sales								
Advertising	❑	❑	❑	❑	❑	❑	❑	❑
Promotion	❑	❑	❑	❑	❑	❑	❑	❑
Packaging	❑	❑	❑	❑	❑	❑	❑	❑
Sales force	❑	❑	❑	❑	❑	❑	❑	❑
Distribution channel	❑	❑	❑	❑	❑	❑	❑	❑
Pricing	❑	❑	❑	❑	❑	❑	❑	❑
Service								
After sales service	❑	❑	❑	❑	❑	❑	❑	❑
After sales training	❑	❑	❑	❑	❑	❑	❑	❑
Parts supply	❑	❑	❑	❑	❑	❑	❑	❑
Support Services								
Human resource management	❑	❑	❑	❑	❑	❑	❑	❑
Technology development	❑	❑	❑	❑	❑	❑	❑	❑
Research & Development	❑	❑	❑	❑	❑	❑	❑	❑
Purchasing	❑	❑	❑	❑	❑	❑	❑	❑
Consultancy	❑	❑	❑	❑	❑	❑	❑	❑

Section 3: Inter-firm Relationships - Upstream & Downstream

Thinking about first your key supplier (**UPSTREAM**), and secondly your key distributor (**DOWNSTREAM**) please indicate, by circling the appropriate number, the extent to which you agree with the following statements where **1=Strongly Disagree and 5=Strongly Agree. If possible, please name your key suppler/distributor.**

Key Supplier: ..... **Key Distributor:** .....

Relationship:	**UPSTREAM**	**DOWNSTREAM**
1. In times of shortages, this firm has gone out on a limb for us.	1 2 3 4 5	1 2 3 4 5
2. Promises made by this firm are reliable.	1 2 3 4 5	1 2 3 4 5
3. This firm is knowledgeable regarding their products.	1 2 3 4 5	1 2 3 4 5
4. This firm does not make false claims.	1 2 3 4 5	1 2 3 4 5
5. This firm is not open in dealing with us.	1 2 3 4 5	1 2 3 4 5
6. We are continually on the lookout for another firm to replace or to add to our current supply chain.	1 2 3 4 5	1 2 3 4 5
7. We're patient when this firm makes mistakes that cause us trouble	1 2 3 4 5	1 2 3 4 5
8. We dedicate any resources necessary to grow sales for this firm.	1 2 3 4 5	1 2 3 4 5
9. No matter who is at fault, problems are joint responsibilities.	1 2 3 4 5	1 2 3 4 5
10. Both sides are concerned about the other's profitability.	1 2 3 4 5	1 2 3 4 5
11. This firm will not take advantage of a strong bargaining position.	1 2 3 4 5	1 2 3 4 5
12. Both sides are willing to make co-operative changes.	1 2 3 4 5	1 2 3 4 5
13. We inform this firm in advance of changing needs.	1 2 3 4 5	1 2 3 4 5
14. We share proprietary information with this firm.	1 2 3 4 5	1 2 3 4 5
Leadership:		
15. This firm has a major influence in the determination of our policies and standards.	1 2 3 4 5	1 2 3 4 5
16. Good ideas from this firm often don't get passed to our managers.	1 2 3 4 5	1 2 3 4 5
17. This firm is not allowed to provide input into the determination of standards and promotional budgets.	1 2 3 4 5	1 2 3 4 5
18. There is a definite lack of coaching, support and feedback.	1 2 3 4 5	1 2 3 4 5
19. Once this firm has transacted with us, they forget all about us.	1 2 3 4 5	1 2 3 4 5
20. This firm is provided with good operations guidelines.	1 2 3 4 5	1 2 3 4 5
21. The rights/obligations of all parties are spelled out in the contract.	1 2 3 4 5	1 2 3 4 5
22. We encourage this firm to adopt our uniform procedures.	1 2 3 4 5	1 2 3 4 5
Communication:		
23. How much feedback do you provide about the product, market conditions etc? (**where 1=very little and 5= a lot**).	1 2 3 4 5	1 2 3 4 5
24. How much feedback does this firm provide to you?	1 2 3 4 5	1 2 3 4 5

25. In co-ordinating your activities with this firm, formal communication channels are followed. Please indicate your level of agreement with the following (where **1=Strongly Disagree** and **5=Strongly Agree**).

	UPSTREAM	**DOWNSTREAM**
The terms of our relationship have been written down in detail.	1 2 3 4 5	1 2 3 4 5
Our expectations of this firm are communicated in detail.	1 2 3 4 5	1 2 3 4 5
The terms of our relationship have been explicitly discussed.	1 2 3 4 5	1 2 3 4 5

26. Please indicate the degree of frequency with which you use the following modes of communication to share information with your supplier/distributor where **1=Low Frequency** and **5=High Frequency**.

	UPSTREAM	DOWNSTREAM
▪ Face to face interaction with salespeople	1 2 3 4 5	1 2 3 4 5
▪ Telephone interaction with salespeople	1 2 3 4 5	1 2 3 4 5
▪ Face to face interaction at management level	1 2 3 4 5	1 2 3 4 5
▪ Telephone interaction at management level	1 2 3 4 5	1 2 3 4 5
▪ Technical support	1 2 3 4 5	1 2 3 4 5
▪ Written letters, correspondence (including fax)	1 2 3 4 5	1 2 3 4 5
▪ Computer link (including e-mail)	1 2 3 4 5	1 2 3 4 5

27. To what extent do you feel that your communication with this firm is: (where **1=Strongly Disagree** and **5=Strongly Agree)**

	UPSTREAM	DOWNSTREAM
▪ Timely	1 2 3 4 5	1 2 3 4 5
▪ Accurate	1 2 3 4 5	1 2 3 4 5
▪ Adequate	1 2 3 4 5	1 2 3 4 5
▪ Complete	1 2 3 4 5	1 2 3 4 5
▪ Credible	1 2 3 4 5	1 2 3 4 5

Supplier Influence Over Your Firm / Your Influence Over Your Distributor:

28. How much **capability** does, **a)** the **upstream firm** have over your firm and **b)** your firm have over your downstream firm, to take each of the following kinds of actions, where **1=Little Capability** and **5=Strong Capability.**

	UPSTREAM	DOWNSTREAM
▪ Critically delay delivery	1 2 3 4 5	1 2 3 4 5
▪ Charge high prices	1 2 3 4 5	1 2 3 4 5
▪ Provide advertising support	1 2 3 4 5	1 2 3 4 5
▪ Train personnel	1 2 3 4 5	1 2 3 4 5
▪ Provide sales promotions materials	1 2 3 4 5	1 2 3 4 5
▪ Provide financing/credit	1 2 3 4 5	1 2 3 4 5
▪ Give business advice	1 2 3 4 5	1 2 3 4 5
▪ Provide inventory management assistance	1 2 3 4 5	1 2 3 4 5

29. With what **frequency** do these actions occur, where **1=Low Frequency** and **5=High Frequency.**

	UPSTREAM	DOWNSTREAM
▪ Critically delay delivery	1 2 3 4 5	1 2 3 4 5
▪ Charge high prices	1 2 3 4 5	1 2 3 4 5
▪ Provide advertising support	1 2 3 4 5	1 2 3 4 5
▪ Train personnel	1 2 3 4 5	1 2 3 4 5
▪ Provide sales promotions materials	1 2 3 4 5	1 2 3 4 5
▪ Provide financing/credit	1 2 3 4 5	1 2 3 4 5
▪ Give business advice	1 2 3 4 5	1 2 3 4 5
▪ Provide inventory management assistance	1 2 3 4 5	1 2 3 4 5

Please indicate the extent to which you would be prepared to make changes demanded of you by another firm, where **1= Not At All** and **5= As Much As They Want**.

30. If this supplier wanted you to raise the prices you charge for their products, what is the maximum amount you would raise prices?	1 2 3 4 5
31. If this supplier wanted you to lower the prices you charge for their products?	1 2 3 4 5

Where **1= Not At All** and **5=As Much As We Want.**

32. If you wanted your distributor to raise the prices they charged for your product?	1 2 3 4 5
33. If you wanted your distributor to lower the prices they charge for your products?	1 2 3 4 5

Again, thinking of first your **supplier**, then your distributor:	**UPSTREAM**	**DOWNSTREAM**
34. If this firm wanted you to change the type of advertising and sales promotion you do for their products, what is the maximum amount you would change?	1 2 3 4 5	1 2 3 4 5
35. If this firm wanted you to change your customer service policy, what is the maximum amount you would change?	1 2 3 4 5	1 2 3 4 5
36. If this firm wanted you to change your customer credit policy, what is the maximum amount you would change?	1 2 3 4 5	1 2 3 4 5
37. On a scale of 1 to 5, where **1= Not at all and 5= Very Much**, to what extent does your firm use co-ordination technology (e.g. shared database, e-mail, computer networks) to share information with this firm?	1 2 3 4 5	1 2 3 4 5

Section 4: Market Orientation

Thinking about your business unit, please indicate how much you agree with each of the following statements (where **1=Strongly Disagree** and **5=Strongly Agree**).

Customer Orientation:

1. Our firm's objectives are driven by customer satisfaction.	1 2 3 4 5
2. Our commitment to serving customer needs is monitored.	1 2 3 4 5
3. Our competitive advantage strategy is based on customer needs.	1 2 3 4 5
4. Our strategies are driven by our beliefs about creating customer value.	1 2 3 4 5
5. Customer satisfaction is frequently and systematically measured.	1 2 3 4 5
6. Close attention is given to after-sales service.	1 2 3 4 5

Competitor Orientation:

7. Our salespeople share information on competitors' strategies.	1 2 3 4 5
8. We respond rapidly to competitors' actions.	1 2 3 4 5
9. Our top managers regularly discuss competitors' strengths and weaknesses.	1 2 3 4 5
10. Our customers are targeted for competitive advantage.	1 2 3 4 5

Inter-functional Co-ordination & Communication:

11. Our top functional managers regularly visit customers.	1 2 3 4 5
12. We share information about customer experiences between functions.	1 2 3 4 5
13. Our business functions are integrated to serve target market needs.	1 2 3 4 5
14. Our managers understand how everyone can contribute.	1 2 3 4 5

Section 5: Business Performance

1. Use the 5-point scale shown below to rate the six dimensions of your business unit's performance. Rate how well your business unit has performed relative to all other competitors in your principal served market segment over the past year.

1	**2**	**3**	**4**	**5**
<20%	21-40%	41-60%	61-80%	81-100%

Example: If you believe that your Return on Net Assets is greater than that of approximately 60% of all competitors in your principle served market, rate yourself 3 for Return on Net Assets.

- Return on Net Assets for 1998/99 _____
- Return on Equity for 1998/99 _____
- New Product Success _____
- Sales Growth _____
- Customer Retention _____
- Brand Equity _____

2. In your principle served market segment over the past year, on average, how satisfied are your customers with your business relative to your leading competitors (where **1= Extremely Dissatisfied** and **5= Extremely Satisfied**)?

1 2 3 4 5

3. What is your approximate current market share in your principal served market? _____%

4. What is your business unit's approximate <u>total sales revenue</u> over the past year?

1	**2**	**3**	**4**	**5**
<£10millions	£10-30 millions	£30-50 millions	£50-60 millions	>£60millions

5. What is your business unit's approximate <u>total profit</u> over the past year?

1	**2**	**3**	**4**	**5**
<£5millions	£5-20millions	£20-35 millions	£35-50 millions	>£50 million

6. Would you describe your business unit's performance as market-leader performance (where **1= Strongly Disagree** and **5= Strongly Agree**)?

1 2 3 4 5

7. How would you rate the shareholder value created by your business unit (where **1= Very Poor** and **5= Very Good**)?

1 2 3 4 5

8. How does your firm drive or create shareholder value added in the following three areas?
   - Growth _____
   - Returns _____
   - Risk _____

THANK YOU FOR YOUR KIND CO-OPERATION

If you would like summary results of findings from this survey, please attach your business card or provide correspondents details.

YOUR COMMENTS:

APPENDIX THREE

References Used in the Development of the Questionnaire

[i] Page AP19: All definitions for points 1 to 7 are taken from Webster (1992) and facilitate the recording of the *form* of integration adopted (Harrigan, 1985c).

[ii] Page AP19: Based on value chain activities as defined by Porter (1985) and incorporated to record the *breadth* of integration (Harrigan, 1985c).

[iii] Page AP19: Based on the traditionally recognised supply chain stages identifying the *stages*, *direction* and *degree* of integration (Harrigan, 1985c).

[iv] Page AP20: Questions 1-5 taken from Ganesan (1994) – a multi-item measurement for trust.

[v] Page AP20: Questions 6-8, taken from Siguaw, Simpson & Baker (1998) - a multi-item measurement for commitment.

[vi] Page AP20: Questions 9-12, taken from Siguaw, Simpson & Baker (1998) - a multi-item measurement for co-operation.

[vii] Page AP20: Questions 13 and 14, taken from Mohr & Sohi (1995) - a measurement for channel communications.

[viii] Page AP20: Questions 15-22, taken from Schul, Pride & Little (1983) - a measurement for channel leadership.

[ix] Page AP20: Questions 23-27, taken from Mohr & Sohi (1995) - a measurement for channel communications.

[x] Page AP21: this question did not form part of the original Mohr & Sohi (1995) channel communications scales and resulted from data collected in the exploratory stage. As such, it was not analysed as part of the scale. The data is to be retained for future research.

[xi] As in note x above.

[xii] As in not x above.

[xiii] Page AP21: Questions 28-36, taken from Gaski & Nevin (1985) – a measurement for channel power.

[xiv] Page AP22: Question 37, this was not part of any previously developed scale but was based on the work of Berry (1995) and the advice of managers interviewed during the exploratory phase.

[xv] Page AP22: Questions 1-14, taken from Narver & Slater (1990) – a measurement for market orientation.

[xvi] Page AP23: Question 1, based on performance measurements used by Narver & Slater (1990) and the different performance perspectives recommended by Kaplan & Norton, (1992).

[xvii] Page AP23: Questions 2-7, based on the different performance perspectives recommended by Kaplan & Norton, (1992) and Fawcett & Cooper (1998).

[xviii] Page AP23: Question 8, based on Rappaport's (1981) discussion on the creation of shareholder value.

THE UNIVERSITY OF WARWICK

Firm Structure and Market Orientation Survey

The purpose of this survey

This survey sets out to identify the reported trend towards outsourcing, whereby functions traditionally performed in-house are contracted out. It will enable us to develop our understanding in three key areas, asking:

1. Are networks of interdependent firms truly becoming the norm in business practice?
2. How does the organisational form (i.e. its level of outsourcing) impact on a firm's market orientation?
3. Are any particular organisational forms more closely associated with increased business performance and market orientation?

Completing the survey

This survey asks you questions about your key product and its supply chain at your business unit. As this questionnaire will be distributed firms at different stages in a product's supply chain; it should be noted that not all questions will be applicable to your firm.

The data you report are confidential

No statistics that would divulge information obtained from this survey relating to any identifiable business will be published or released in any manner. The data reported on the survey questionnaire will be treated in strict confidence, used for statistical purposes and released in aggregate form only. There will be no facility to identify individual businesses as a result of publishing the statistical evidence.

Your participation is important

Participation in this survey is voluntary. However, your co-operation in completing the questionnaire is vital for the statistical analysis to be applied.

If you require assistance in the completion of the questionnaire or have any questions regarding the survey, please contact:

Katy Mason, Warwick Business School, Marketing & Strategic Management, Coventry CV4 7AL,
Tel: 01203 524691. Fax: 01203 524503. E-mail: k.mason@wbs.warwick.ac.uk

WARWICK BUSINESS SCHOOL

Research Into Firm Structure & Market Orientation

Section 1: Firm Background

Company Name: ..... Business Unit Name:.....

Year Established: ..... No. Of Employees: .....

Industry Sector:..... Your Position.....

What is your key product line?.....

Has the company seen any change of ownership in the past 10 years (please specify).....

.....

How long have you worked at the company?.....

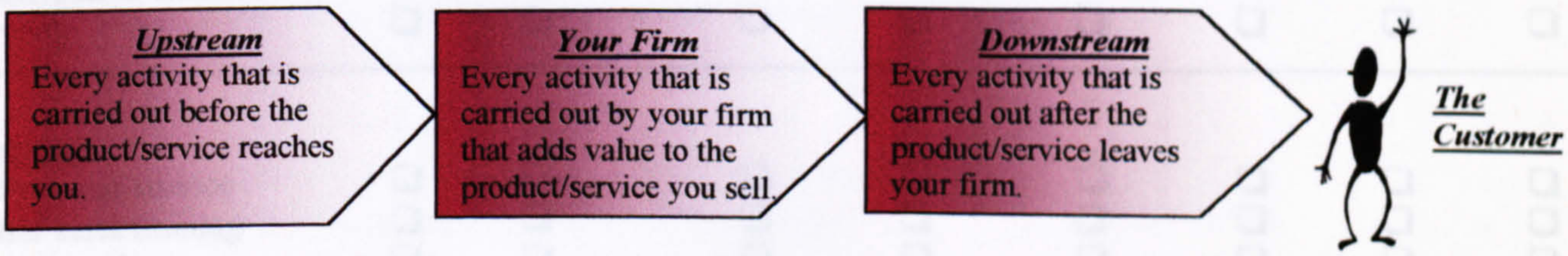
Is your organisation publicly listed?.....

Section 2: Your Firm's Structure

The instructions on the remainder of this page provide the context and guidance for the entire questionnaire. Please take 2 minutes to read them carefully.

Every product passes through a process that transforms it from a raw material state to a useable product for the customer. This chain of value adding activities, known as the *supply chain*, may be carried out by a single firm or by a number of independent firms.

Activities that are performed before the product reaches your firm are said to occur ***upstream*** of the supply chain. Activities that are performed after the product leaves your firm and before the product reaches the customer are said to occur ***downstream*** of the supply chain. This questionnaire investigates the ownership and control your firm has over its entire supply chain.



As we have said, activities can be carried out by your firm (**in-house (7)**) or contracted-out to be performed by independent firms. This is sometimes referred to as outsourcing. The degree of ownership and type of relationship between independent firms varies. Listed below are definitions of 6 key forms of outsourcing:

1. **Pure Transaction:** one off transaction.
2. **Repeat Transaction:** simple transaction – no collaboration or relationship building, infrequent.
3. **Long-term Relationship:** build co-operative relationship.
4. **Buyer-Seller Partnership:** high co-operation and collaboration. Mutual total dependency.
5. **Strategic Alliance:** part financial ownership, high commitment & collaboration. Inc. joint ventures.
6. **Network Organisation:** strong, dependent, open relationship, high trust, commitment, collaboration and Co-operation. Tries to create a virtual integrated supply chain.

Opposite is a list of activities regularly carried out in the processing of products and/or services.

Continued...

Thinking about your business unit, please indicate (✓) which of these activities are part of the **supply chain of your key product** and, referencing to the types of outsourcing described on the previous page, identify the level of relationship with each trading partner.

ACTIVITIES: [ii]	1 Pure Transaction	2 Repeat Transaction	3 Long-term Relationship	4 Buyer-seller Partnership	5 Strategic Alliance	6 Network Organisation	7 [i] In-house	N/A
Stages of the Supply Chain [iii]								
Supply of Raw Materials	❑	❑	❑	❑	❑	❑	❑	❑
Manufacturer	❑	❑	❑	❑	❑	❑	❑	❑
Assembly	❑	❑	❑	❑	❑	❑	❑	❑
Wholesaler	❑	❑	❑	❑	❑	❑	❑	❑
Distribution	❑	❑	❑	❑	❑	❑	❑	❑
Retailer	❑	❑	❑	❑	❑	❑	❑	❑
Inbound Activities								
Warehousing	❑	❑	❑	❑	❑	❑	❑	❑
Inventory control	❑	❑	❑	❑	❑	❑	❑	❑
Research & Design	❑	❑	❑	❑	❑	❑	❑	❑
Assembly	❑	❑	❑	❑	❑	❑	❑	❑
Outbound Activities								
Distribution to buyers	❑	❑	❑	❑	❑	❑	❑	❑
Finished goods warehousing	❑	❑	❑	❑	❑	❑	❑	❑
Delivery vehicle control	❑	❑	❑	❑	❑	❑	❑	❑
Order processing and scheduling	❑	❑	❑	❑	❑	❑	❑	❑
Marketing & Sales								
Advertising	❑	❑	❑	❑	❑	❑	❑	❑
Promotion	❑	❑	❑	❑	❑	❑	❑	❑
Packaging	❑	❑	❑	❑	❑	❑	❑	❑
Sales force	❑	❑	❑	❑	❑	❑	❑	❑
Distribution channel	❑	❑	❑	❑	❑	❑	❑	❑
Pricing	❑	❑	❑	❑	❑	❑	❑	❑
Service								
After sales service	❑	❑	❑	❑	❑	❑	❑	❑
After sales training	❑	❑	❑	❑	❑	❑	❑	❑
Parts supply	❑	❑	❑	❑	❑	❑	❑	❑
Support Services								
Human resource management	❑	❑	❑	❑	❑	❑	❑	❑
Technology development	❑	❑	❑	❑	❑	❑	❑	❑
Research & Development	❑	❑	❑	❑	❑	❑	❑	❑
Purchasing	❑	❑	❑	❑	❑	❑	❑	❑
Consultancy	❑	❑	❑	❑	❑	❑	❑	❑

Section 3: Inter-firm Relationships - Upstream & Downstream

Thinking about first your key supplier (**UPSTREAM**), and secondly your key distributor (**DOWNSTREAM**) please indicate, by circling the appropriate number, the extent to which you agree with the following statements where **1=Strongly Disagree and 5=Strongly Agree. If possible, please name your key suppler/distributor.**

Key Supplier: ..... **Key Distributor:** .....

Relationship:	**UPSTREAM**	**DOWNSTREAM**
1. In times of shortages, this firm has gone out on a limb for us.[iv]	1 2 3 4 5	1 2 3 4 5
2. Promises made by this firm are reliable.	1 2 3 4 5	1 2 3 4 5
3. This firm is knowledgeable regarding their products.	1 2 3 4 5	1 2 3 4 5
4. This firm does not make false claims.	1 2 3 4 5	1 2 3 4 5
5. This firm is not open in dealing with us.	1 2 3 4 5	1 2 3 4 5
6. We are continually on the lookout for another firm to replace or [v] to add to our current supply chain.	1 2 3 4 5	1 2 3 4 5
7. We're patient when this firm makes mistakes that cause us trouble	1 2 3 4 5	1 2 3 4 5
8. We dedicate any resources necessary to grow sales for this firm.	1 2 3 4 5	1 2 3 4 5
9. No matter who is at fault, problems are joint responsibilities.[vi]	1 2 3 4 5	1 2 3 4 5
10. Both sides are concerned about the other's profitability.	1 2 3 4 5	1 2 3 4 5
11. This firm will not take advantage of a strong bargaining position.	1 2 3 4 5	1 2 3 4 5
12. Both sides are willing to make co-operative changes.	1 2 3 4 5	1 2 3 4 5
13. We inform this firm in advance of changing needs.[vii]	1 2 3 4 5	1 2 3 4 5
14. We share proprietary information with this firm.	1 2 3 4 5	1 2 3 4 5
Leadership:		
15. This firm has a major influence in the determination of our[viii] policies and standards.	1 2 3 4 5	1 2 3 4 5
16. Good ideas from this firm often don't get passed to our managers.	1 2 3 4 5	1 2 3 4 5
17. This firm is not allowed to provide input into the determination of standards and promotional budgets.	1 2 3 4 5	1 2 3 4 5
18. There is a definite lack of coaching, support and feedback.	1 2 3 4 5	1 2 3 4 5
19. Once this firm has transacted with us, they forget all about us.	1 2 3 4 5	1 2 3 4 5
20. This firm is provided with good operations guidelines.	1 2 3 4 5	1 2 3 4 5
21. The rights/obligations of all parties are spelled out in the contract.	1 2 3 4 5	1 2 3 4 5
22. We encourage this firm to adopt our uniform procedures.	1 2 3 4 5	1 2 3 4 5
Communication:		
23. How much feedback do you provide about the product, market[ix] conditions etc? **(where 1=very little and 5= a lot)**.	1 2 3 4 5	1 2 3 4 5
24. How much feedback does this firm provide to you?	1 2 3 4 5	1 2 3 4 5

25. In co-ordinating your activities with this firm, formal communication channels are followed. Please indicate your level of agreement with the following (where **1=Strongly Disagree** and **5=Strongly Agree)**.

	UPSTREAM	**DOWNSTREAM**
The terms of our relationship have been written down in detail.	1 2 3 4 5	1 2 3 4 5
Our expectations of this firm are communicated in detail.	1 2 3 4 5	1 2 3 4 5
The terms of our relationship have been explicitly discussed.	1 2 3 4 5	1 2 3 4 5

26. Please indicate the degree of frequency with which you use the following modes of communication to share information with your supplier/distributor where **1=Low Frequency** and **5=High Frequency**.

	UPSTREAM	DOWNSTREAM
▪ Face to face interaction with salespeople	1 2 3 4 5	1 2 3 4 5
▪ Telephone interaction with salespeople	1 2 3 4 5	1 2 3 4 5
▪ Face to face interaction at management level[x]	1 2 3 4 5	1 2 3 4 5
▪ Telephone interaction at management level[xi]	1 2 3 4 5	1 2 3 4 5
▪ Technical support	1 2 3 4 5	1 2 3 4 5
▪ Written letters, correspondence (including fax)	1 2 3 4 5	1 2 3 4 5
▪ Computer link (including e-mail)[xii]	1 2 3 4 5	1 2 3 4 5

27. To what extent do you feel that your communication with this firm is: (where **1=Strongly Disagree** and **5=Strongly Agree**)[xiii]

	UPSTREAM	DOWNSTREAM
▪ Timely	1 2 3 4 5	1 2 3 4 5
▪ Accurate	1 2 3 4 5	1 2 3 4 5
▪ Adequate	1 2 3 4 5	1 2 3 4 5
▪ Complete	1 2 3 4 5	1 2 3 4 5
▪ Credible	1 2 3 4 5	1 2 3 4 5

Supplier Influence Over Your Firm / Your Influence Over Your Distributor:

28. How much **capability** does, **a)** the **upstream firm** have over your firm and **b)** your firm have over your downstream firm, to take each of the following kinds of actions, where **1=Little Capability** and **5=Strong Capability.**

	UPSTREAM	DOWNSTREAM
▪ Critically delay delivery	1 2 3 4 5	1 2 3 4 5
▪ Charge high prices	1 2 3 4 5	1 2 3 4 5
▪ Provide advertising support	1 2 3 4 5	1 2 3 4 5
▪ Train personnel	1 2 3 4 5	1 2 3 4 5
▪ Provide sales promotions materials	1 2 3 4 5	1 2 3 4 5
▪ Provide financing/credit	1 2 3 4 5	1 2 3 4 5
▪ Give business advice	1 2 3 4 5	1 2 3 4 5
▪ Provide inventory management assistance	1 2 3 4 5	1 2 3 4 5

29. With what **frequency** do these actions occur, where **1=Low Frequency** and **5=High Frequency.**

	UPSTREAM	DOWNSTREAM
▪ Critically delay delivery	1 2 3 4 5	1 2 3 4 5
▪ Charge high prices	1 2 3 4 5	1 2 3 4 5
▪ Provide advertising support	1 2 3 4 5	1 2 3 4 5
▪ Train personnel	1 2 3 4 5	1 2 3 4 5
▪ Provide sales promotions materials	1 2 3 4 5	1 2 3 4 5
▪ Provide financing/credit	1 2 3 4 5	1 2 3 4 5
▪ Give business advice	1 2 3 4 5	1 2 3 4 5
▪ Provide inventory management assistance	1 2 3 4 5	1 2 3 4 5

Please indicate the extent to which you would be prepared to make changes demanded of you by another firm, where **1= Not At All** and **5= As Much As They Want**.

30. If this supplier wanted you to raise the prices you charge for their products, what is the maximum amount you would raise prices?	1	2	3	4	5
31. If this supplier wanted you to lower the prices you charge for their products?	1	2	3	4	5

Where **1= Not At All** and **5=As Much As We Want.**

32. If you wanted your distributor to raise the prices they charged for your product?	1	2	3	4	5
33. If you wanted your distributor to lower the prices they charge for your products?	1	2	3	4	5

Again, thinking of first your **supplier**, then your distributor:	**UPSTREAM**					**DOWNSTREAM**				
34. If this firm wanted you to change the type of advertising and sales promotion you do for their products, what is the maximum amount you would change?	1	2	3	4	5	1	2	3	4	5
35. If this firm wanted you to change your customer service policy, what is the maximum amount you would change?	1	2	3	4	5	1	2	3	4	5
36. If this firm wanted you to change your customer credit policy, what is the maximum amount you would change?	1	2	3	4	5	1	2	3	4	5
37. On a scale of 1 to 5, where **1= Not at all and** [xiv] **5= Very Much**, to what extent does your firm use co-ordination technology (e.g. shared database, e-mail, computer networks) to share information with this firm?	1	2	3	4	5	1	2	3	4	5

Section 4: Market Orientation

Thinking about your business unit, please indicate how much you agree with each of the following statements (where **1=Strongly Disagree** and **5=Strongly Agree**).[xv]

Customer Orientation:

1. Our firm's objectives are driven by customer satisfaction.	1	2	3	4	5
2. Our commitment to serving customer needs is monitored.	1	2	3	4	5
3. Our competitive advantage strategy is based on customer needs.	1	2	3	4	5
4. Our strategies are driven by our beliefs about creating customer value.	1	2	3	4	5
5. Customer satisfaction is frequently and systematically measured.	1	2	3	4	5
6. Close attention is given to after-sales service.	1	2	3	4	5

Competitor Orientation:

7. Our salespeople share information on competitors' strategies.	1	2	3	4	5
8. We respond rapidly to competitors' actions.	1	2	3	4	5
9. Our top managers regularly discuss competitors' strengths and weaknesses.	1	2	3	4	5
10. Our customers are targeted for competitive advantage.	1	2	3	4	5

Inter-functional Co-ordination & Communication:

11. Our top functional managers regularly visit customers.	1	2	3	4	5
12. We share information about customer experiences between functions.	1	2	3	4	5
13. Our business functions are integrated to serve target market needs.	1	2	3	4	5
14. Our managers understand how everyone can contribute.	1	2	3	4	5

Section 5: Business Performance

1. Use the 5-point scale shown below to rate the six dimensions of your business unit's performance. Rate how well your business unit has performed relative to all other competitors in your principal served market segment over the past year.[xvi]

1	**2**	**3**	**4**	**5**
<20%	21-40%	41-60%	61-80%	81-100%

Example: If you believe that your Return on Net Assets is greater than that of approximately 60% of all competitors in your principle served market, rate yourself 3 for Return on Net Assets.

- Return on Net Assets for 1998/99 _____
- Return on Equity for 1998/99 _____
- New Product Success _____
- Sales Growth _____
- Customer Retention _____
- Brand Equity _____

2. In your principle served market segment over the past year, on average, how satisfied are your [xvii]customers with your business relative to your leading competitors (where **1= Extremely Dissatisfied** and **5= Extremely Satisfied**)?

1 2 3 4 5

3. What is your approximate current market share in your principal served market? _____%

4. What is your business unit's approximate total sales revenue over the past year?

1	**2**	**3**	**4**	**5**
<£10millions	£10-30 millions	£30-50 millions	£50-60 millions	>£60millions

5. What is your business unit's approximate total profit over the past year?

1	**2**	**3**	**4**	**5**
<£5millions	£5-20millions	£20-35 millions	£35-50 millions	>£50 million

6. Would you describe your business unit's performance as market-leader performance (where **1= Strongly Disagree** and **5= Strongly Agree**)?

1 2 3 4 5

7. How would you rate the shareholder value created by your business unit (where **1= Very Poor** and **5= Very Good**)?

1 2 3 4 5

8. How does your firm drive or create shareholder value added in the following three areas?[xviii]
   - Growth _____
   - Returns _____
   - Risk _____

THANK YOU FOR YOUR KIND CO-OPERATION

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